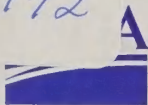


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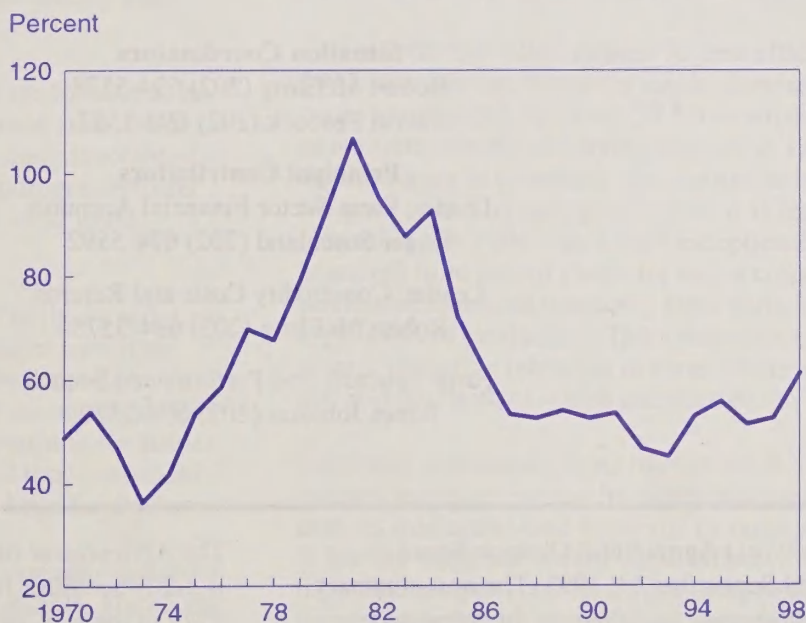
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Agricultural Income and Finance

Situation and Outlook Report

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Use of Debt Repayment Capacity Still Strong Despite Lower 1998 Incomes



Actual debt compared with a hypothetical maximum debt that could
be carried based upon repayment capacity.
Source: Economic Research Service, USDA.

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Highlights

Net *farm* income for 1998 is currently forecast at \$42 billion, down \$7.9 billion from the near record high attained in 1997. Net *cash* income is currently forecast at \$53 billion, down \$7.8 billion from 1997. Both net farm and net cash income earned in 1998 will be about the same as earned on average in the first half of the 1990s.

The value of crop production from U.S. farms in 1998 is forecast to drop \$7.9 billion, led by a \$3.5-billion drop in sales of feed crops, mostly corn. The value of livestock production is forecast to be down \$2.3 billion, led by a \$4.3-billion drop in sales of meat animals. Lower prices received by farmers account for much of the decline in value of production and the resulting decrease in income. Declining demand for exports and increases in supplies available from foreign competitors are major contributors to the lowering of prices.

Recently enacted legislation gives farmers an additional option for boosting cash flow in 1998, by authorizing producers *individually at their option* to receive *prior to January 1* a larger percentage of the 1999 fiscal year government payments to which each is eligible. The legislative change does not increase the amount of money farmers, individually or as a group, are eligible to receive under the 1996 Farm Act but only allows them to receive the money at an earlier date. Both Congress and the Administration are currently proposing additional funding for farmers and ranchers to ease the impact of this year's lower commodity prices. If additional government payments become available, producers' incomes could rise.

On the expense side, total farm expenses are forecast to be lower in 1998, the first year-to-year decrease since 1992. Interest rates and fuel costs are currently quite favorable for farmers, and low fuel costs help to keep nitrogen fertilizer prices low. Livestock producers will also incur lower expenses for feed and feeder livestock.

Since most farms and ranches are really family-owned operations, off-farm income usually plays a major role in the well-being of the business. On average, farm operator households earned about \$52,000 in total income in 1997 and the 1998 outlook is for incomes to remain fairly stable. Off-farm income is an important source of total household income for all size farm operations, even large family farms.

On the balance sheet side, debt-to-asset ratios are expected to stabilize at about 15.3 percent for 1997 and 1998. They have improved throughout the 1990s as the rise in the value of farm business assets, especially farm real estate values, has been proportionally greater than the increase in farm business debt. The improved equity position of most farm operations during the 1990s has given producers an added margin to lessen the impact of short-term declines in income.

Farmers are expected to use their available credit lines more fully in 1998. Use of farm debt repayment capacity (actual debt expressed as a percentage of maximum feasible debt) effectively measures the extent to which farmers are using their available lines of credit. This ratio indicates that, in 1998, farmers are expected to use over 61 percent of the debt that could be supported by their current incomes. While this is the highest value this measure has attained since 1986, it is substantially below its levels during 1979-85, when it consistently measured above 70 percent.

In 1997 the Secretary of Agriculture established the National Commission on Small Farms to examine issues facing small farms. The Commission considered a farm to be "small" if its gross sales did not exceed \$250,000. The Commission set the cutoff high enough to include more farm families of relatively modest income who may need or want to improve their net farm income. As a result, the Commission's small farms category includes nine out of ten U.S. farms and ranches.

In response to the Commission, ERS developed a "farm typology" that sorts farms on the basis of the major occupation of their operators, their farm sales class, and other household and farm characteristics. The typology divides farms into smaller, more homogeneous groups. Using this new typology and USDA's most recent farm finance survey (1997), it was found that farm households with agricultural sales under \$100,000 relied almost exclusively on off-farm income to cover family living expenses. These groups also did not generally report farming as their major occupation.

Two months ago ERS released its first official estimates of 1997 farm income, replacing earlier forecasts. These estimates showed that 31 of the 50 States experienced declines in net farm income of varying degrees in 1997. These declines were in contrast to the across-the-board increases the prior year. To retain perspective, it is important to remember that 1996 was a truly exceptional year. Farmers benefited from record yields for major crops in 1996 and prices that remained unusually high, particularly given the high levels of production. The value of crop production soared, reflecting rebounds in acres harvested and yields for major crops, both of which had declined in 1995.

California continued to lead the Nation in 1997 cash receipts and farm income by substantial amounts, reflecting both its substantial land mass and its commodity mix, which is heavily weighted toward commodities with a high value of production per acre. Four States had their net farm income plummet by more than 50 percent: North Dakota (-90 percent), Maine (-75 percent), Wisconsin (-66 percent), and New York (-51) percent.

Costs of producing most crops and livestock commodities showed little change in 1997 with many declining slightly.

Incomes of U.S. Farmers Track Falling Commodity Prices in 1998

Production continues high, but falling crop prices are leading to lower value of production and to reduced net income. Effects are unevenly distributed and vary by mix of commodities produced, inputs used, and geographic location.

Net farm income for 1998 is forecast to be \$42 billion, down \$7.9 billion from 1997 and \$11.4 billion below 1996's record level. *Net cash income* is forecast to be \$53 billion, down \$7.8 billion from 1997 and \$3.4 billion below 1996. However, each income measure in 1998 will be about the same level as the average for the first half of the 1990s.

Lower commodity prices account for much of the decline in income. Prices received by producers for corn, soybeans, wheat, upland cotton, and hogs (figures 7-12) in 1998 have been well below those of the previous 2 years. The reduction in net farm income is largely attributable to lower prices for these five commodities, which comprised 32 percent of farm cash receipts in 1997. Large expected harvests of most crops have maintained pressure on domestic market prices throughout 1998. The U.S. soybean harvest is expected to be a record, the corn harvest will be just below the record established in 1994, and the wheat harvest is higher than the last 2 years.

Since a significant share of domestic production of these crops is exported, prices U.S. farmers receive are strongly affected by supply and demand conditions in the global marketplace. Good growing seasons, both here and in other exporting countries, have resulted in abundant world supplies. As a result of slowing economic growth, demand is

down considerably in numerous countries that have purchased U.S. exports in recent years. Farm exports have been further dampened by the relative strength of the dollar, which raises the price of U.S.-produced goods in importing nations, while making goods produced by our competitors relatively less expensive.

Value of Production Declines

Lower commodity prices have contributed directly to the projected decline in U.S. agricultural sector income and to the anticipated reduction in the value of production (final output in the value added accounts). Final output is forecast to be \$221 billion in 1998, down \$9.8 billion from 1997 and \$7.5 billion below 1996. While down from the past 2 years, output values for both the crop and livestock sectors in 1998 will remain considerably above those attained in 1990-95. Income effects will not be distributed evenly over all producers, but will vary by the commodity mix produced, by the types of inputs used, and by geographic location.

The value of crop production from U.S. farms in 1998 is forecast to drop \$7.9 billion, led by a \$3.5-billion drop in sales of feed crops, mostly corn. Food grains receipts are forecast to be down \$1.7 billion, with wheat accounting for nearly all of the reduction. Oil crop receipts are forecast down \$2.2 billion and cotton receipts are forecast down by \$700 million. Price declines account for the fall in the value of production, as abundant harvests of major crops are probable in 1998. Cotton is an exception, with prices trending upward during the summer as a significant drought in Texas and the Southeast is reducing the per acre yield for upland cotton.

The value of livestock production is forecast to be down \$2.3 billion in 1998, led by a \$4.3-billion drop in sales of meat animals. Cattle prices have declined recently. Prices for hogs and for milk and dairy products have turned up in recent months after declining earlier in the year. Broiler prices have been rising through early September.

The projected 1998 reduction in value of livestock production follows an excellent year for most livestock operations. Production and sales of livestock and products were up substantially across the board in 1997, led by a \$5-billion rise

Net farm income, a value of production measure, is the farm operator's share of the sector's net value added to the national economy from production activities within a calendar year.

Net cash income is the cash earnings realized within the year from the sales of production and the conversion of assets, both inventories (in years in which reduced) and capital consumption, into cash. Net cash income cannot be maintained for more than a year or two without being replenished through production.

Both income measures include Government payments and farm-related income.

Figure 1
Net value-added, net farm income and net cash income, 1994-98

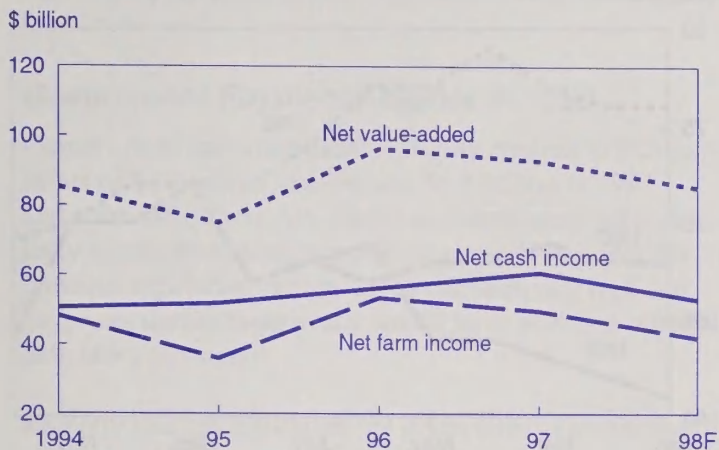


Figure 2
Net value-added by farm sector, shares to farm operator and nonoperator participants, 1994-98

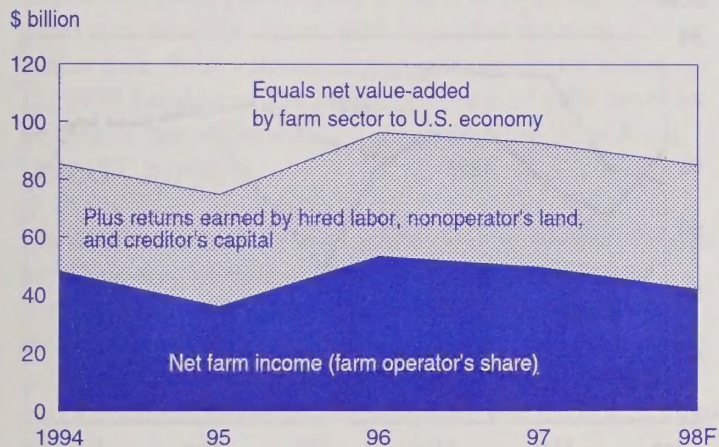
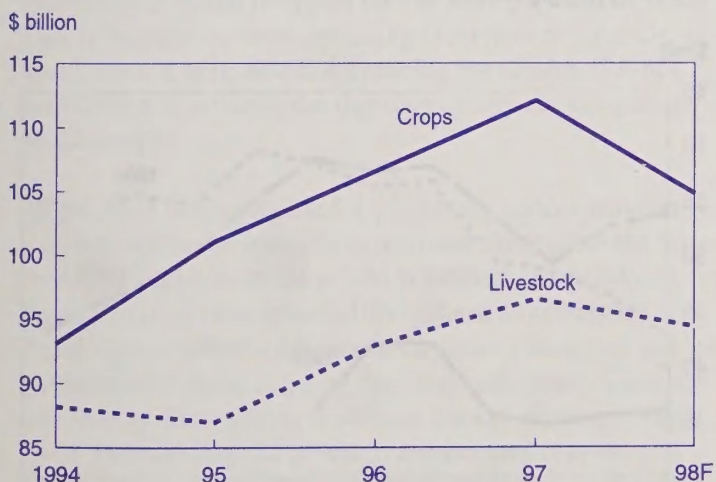


Figure 3
Final crop and animal output, 1994-98



Source: Economic Research Service, USDA.

Figure 4
Corn, soybean, and wheat production, 1994-98

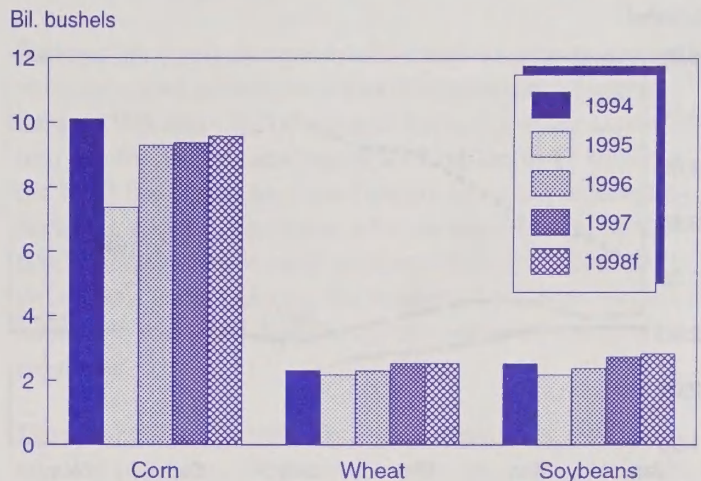


Figure 5
Final agricultural sector output and intermediate consumption outlays, 1994-98

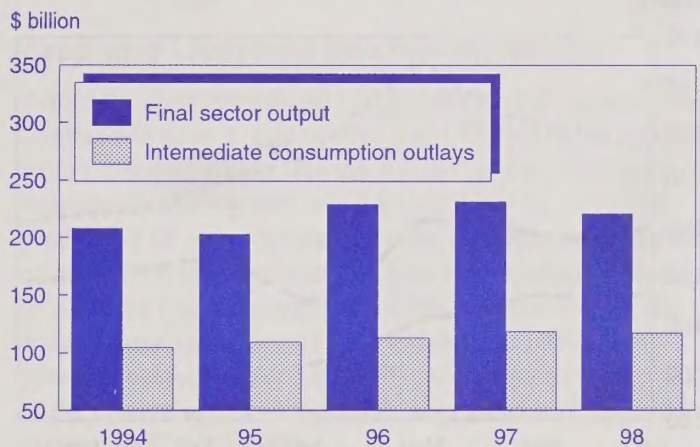


Figure 6
Direct government payments and farm sector payments to government, 1980-98

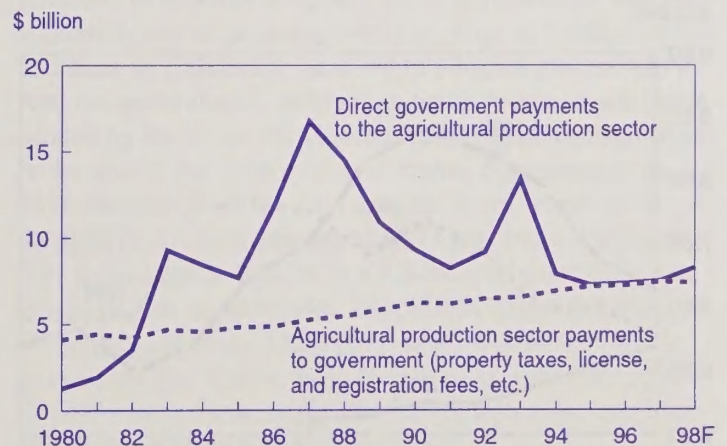


Figure 7

Monthly corn prices, 1996-98

\$/bushel

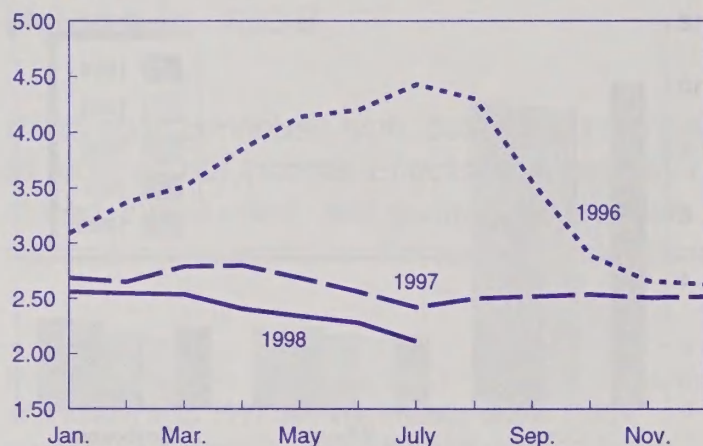


Figure 10

Monthly upland cotton prices, 1996-98

Cents/lb

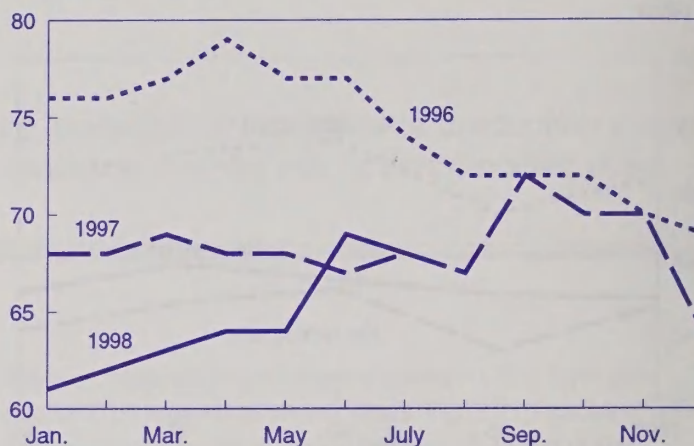


Figure 8

Monthly wheat prices, 1996-98

\$/bushel

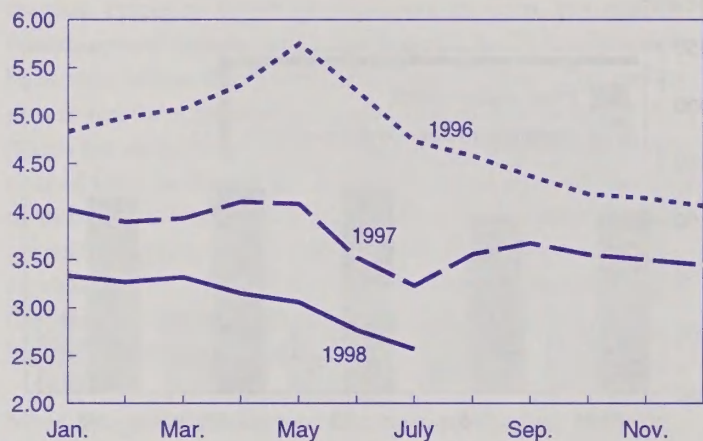


Figure 11

Monthly beef prices, 1996-98

\$/cwt

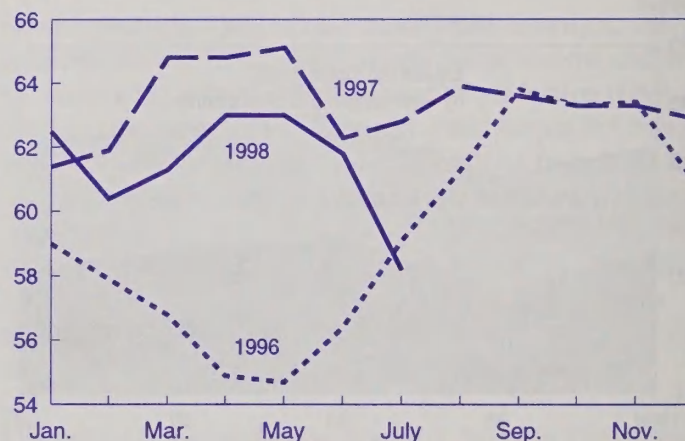


Figure 9

Monthly soybean prices, 1996-98

\$/bushel

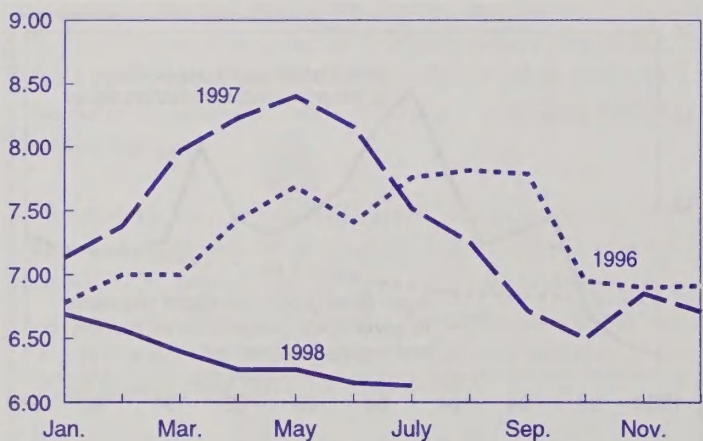
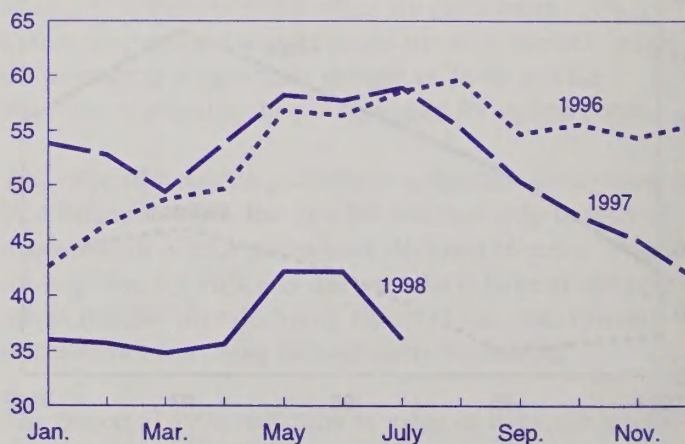


Figure 12

Monthly hog prices, 1996-98

\$/cwt



Source: Economic Research Service, USDA.

in cattle cash receipts. Sales of hogs and broilers also rose in 1997. Much of the production gains occurred in the second half of the year as the prices of grains declined, reducing the feed costs.

Government Payments Higher in 1998

Farmers received production flexibility contract (PFC) payments of \$5.2 billion in 1996 and \$6.3 billion in 1997 under the 1996 Farm Act. These payments were substantially higher than farmers would have received under the previous legislation, which, given the relatively high market prices during these years, would have provided reduced deficiency payments.

Recently enacted legislation has given farmers an additional option for boosting cash flow in 1998, by authorizing producers *individually at their option* to receive *prior to January 1* up to 100 percent of the 1999 fiscal year PFC payments to which each is eligible. The legislative change does not increase the amount of money farmers, individually or as a group, are eligible to receive under the 1996 Farm Act, but only allows them to receive the money at an earlier date. Total authorized payments are \$5.65 billion for the 1999 fiscal year. The current estimate of 1998 farm income in this report includes about \$1.1 billion of fiscal 1999 PFC payments.

The extent to which farmers will choose to advance the date on which they receive payment is not clear at this time. Farmers will make a choice depending on their individual circumstances. If advancing the timing of receipt is critical to paying family and production expenses or to remaining current on debt payments, the producer will likely choose to do so.

However, tax considerations may cause many farmers to choose not to advance payment dates into 1998. The choice of tax year in which to receive the money can affect how much an individual producer retains after payment of taxes. This is because income, including Government payments, is taxed when it is received. Advancing the receipt of funds into 1998 will advance the due date on any tax obligations by 12 months.

As prices of crops eligible for placement under Commodity Credit Corporation loans have declined throughout the year, they have fallen to levels at which farmers are qualifying for loan deficiency payments (LDPs). These payments are based on the difference between the county loan rate and the posted county price (a proxy for local cash price). They are designed to allow prices to drop to market-clearing levels, while guaranteeing the producer a minimum revenue per unit. The current estimate of LDPs included in 1998 farm income is about \$637 million. These payments should provide some cushioning to further price declines from recent levels, and LDP payments could total \$3.3 billion in calen-

dar year 1998, with as much as \$2.5 billion of these coming in the fourth quarter.

Farmers are likely to receive additional income support from enhanced government financial assistance programs during 1998 and 1999. Proposals currently under consideration call for added spending of \$3.9 billion to \$7 billion in the 1999 fiscal year to assist farmers adversely affected by declining commodity prices, adverse weather, and production shortfalls. While such payments translate directly into an increase in net income, the impact on net farm income in both 1998 and 1999 depends on the timing of receipt of the payments.

There is obvious uncertainty in any estimate of 1998 government payments. Depending on the degree of acceleration of receipt of fiscal year 1999 production flexibility contract payments, the ultimate level of LDPs, and the size and availability of a likely financial assistance package, net farm income could rise by \$5 billion or more above the \$42-billion level projected under current assumptions.

Crop and Livestock Inventories Adjust

Typically, an extraordinarily large harvest will generate substantial additions to inventories and will then be reflected in a drawdown in inventories the following year when production returns to long term trend levels. However, in 1997, production of corn (the leading crop in value of production) exceeded the 1996 production. As a consequence, farmers sold off the big carryover from 1996 to make way for the equally large quantities of the 1997 harvest retained in yearend inventories for future sale. Consequently, the value of the change in crop inventories at yearend was about the same in 1997 as in 1996.

The rapid structural change occurring in livestock farming, with production units becoming larger and more specialized, is reducing the amount of on-farm crop inventories that diversified farm operations previously maintained to feed to livestock enterprises. Regional shifts in production and consolidation into large operations (e.g., hogs in North Carolina and dairy in California) have led to a higher percentage of feed being purchased, rather than being grown on the farms producing the livestock. Consequently, the percentage of the crops sold in the open market is higher. For example, in 1996 the percent of the corn used on farms where produced dropped from 20.46 percent to 16.73 percent, a difference of 3.71 percentage points. With a 9.3-billion-bushel crop, this translates into an additional 350 million bushels of sales. At 1996 prices of about \$3.20 per bushel, this boosts sales to over \$1 billion. The increase in quantities available for sale in 1997 and the first half of 1998 were about the same, but prices received by farmers were lower.

Livestock inventories are also adjusting to market signals. Beef production rose in 1997, particularly in the third and

Table 1--Value added to the U.S. economy by the agricultural sector via the production of goods and services, 1994-1998F 1/

United States		1994	1995	1996	1997	1998F
Item						
		\$ billion				
Final crop output		100.3	95.8	115.6	112.5	104.6
Food grains		9.5	10.4	10.7	10.6	8.9
Feed crops		20.4	24.6	27.3	27.6	24.1
Cotton		6.7	6.9	7.0	6.5	5.9
Oil crops		14.7	15.5	16.4	19.9	17.7
Tobacco		2.7	2.5	2.8	2.9	3.1
Fruits and tree nuts		10.3	11.1	11.9	12.8	12.4
Vegetables		13.9	14.9	14.6	15.1	16.1
All other crops		14.9	15.2	15.9	16.7	16.6
Home consumption		0.1	0.1	0.1	0.1	0.1
Value of inventory adjustment 2/		7.2	-5.4	8.9	0.3	-0.2
Final animal output		89.7	87.6	92.2	96.2	93.9
Meat animals		46.8	44.8	44.4	49.9	45.6
Dairy products		19.9	19.9	22.8	21.0	22.7
Poultry and eggs		18.4	19.1	22.3	22.2	22.6
Miscellaneous livestock		3.0	3.2	3.4	3.5	3.5
Home consumption		0.4	0.4	0.3	0.4	0.4
Value of inventory adjustment 2/		1.1	0.2	-1.1	-0.7	-0.9
Services and forestry		17.9	19.4	20.7	22.1	22.4
Machine hire and customwork		2.1	1.9	2.2	2.6	2.6
Forest products sold		2.7	2.9	2.8	2.8	2.6
Other farm income		4.4	5.2	5.9	6.3	6.3
Gross imputed rental value of farm dwellings		8.7	9.3	9.8	10.3	11.0
Final agricultural sector output		207.9	202.8	228.5	230.8	221.0
less: Intermediate consumption outlays		104.9	109.0	112.9	118.6	116.9
Farm origin		41.3	41.6	42.7	45.7	43.9
Feed purchased		22.6	23.8	25.2	25.2	24.5
Livestock and poultry purchased		13.3	12.3	11.2	13.8	12.8
Seed purchased		5.4	5.5	6.2	6.7	6.7
Manufactured inputs		24.4	26.2	28.6	29.0	29.0
Fertilizers and lime		9.2	10.0	10.9	10.9	11.0
Pesticides		7.2	7.7	8.5	8.8	8.8
Petroleum fuel and oils		5.3	5.4	6.0	6.2	6.2
Electricity		2.7	3.0	3.2	3.0	3.0
Other intermediate expenses		39.2	41.2	41.5	43.9	44.0
Repair and maintenance of capital items		9.1	9.5	10.3	10.4	10.6
Machine hire and customwork		4.8	4.8	4.7	4.8	4.8
Marketing, storage, and transportation		6.8	7.2	6.9	7.1	7.2
Contract labor		1.8	2.0	2.1	2.6	2.7
Miscellaneous expenses		16.7	17.8	17.5	19.0	18.8
plus: Net government transactions		1.0	0.1	0.1	0.1	0.8
+ Direct Government payments		7.9	7.3	7.3	7.5	8.3
- Vehicle registration and licensing fees		0.4	0.5	0.4	0.5	0.4
- Property taxes		6.5	6.7	6.8	7.0	7.0
Gross value added		104.0	93.9	115.7	112.3	104.8
less: Capital consumption		18.7	19.1	19.4	19.5	19.7
Net value added		85.3	74.8	96.3	92.8	85.1
less: Factor payments		37.0	38.8	42.9	42.9	43.1
Employee compensation (total hired labor)		13.5	14.3	15.4	16.0	16.6
Net rent received by nonoperator landlords		11.8	11.8	14.3	13.2	12.9
Real estate and nonreal estate interest		11.7	12.7	13.2	13.7	13.6
Net farm income		48.3	36.0	53.4	49.8	42.0

F = Forecast.

1/ Final sector output is the gross value of the commodities and services produced within a year. Net value-added is the sector's contribution to the National economy and is the sum of the income from production earned by all factors-of- production. Net farm income is the farm operators' share of income from the sector's production activities. The concept presented is consistent with that employed by the Organization for Economic Cooperation and Development.

2/ A positive value of inventory change represents current-year production not sold by December 1. A negative value is an offset to production from prior years included in current-year sales.

Table 2--Income statement for U.S farm sector

	1994	1995	1996	1997	1998F
	\$ billion				
Cash income statement:					
1. Cash receipts	181.2	188.1	199.6	208.7	199.1
Crops 1/	93.1	101.1	106.6	112.1	104.8
Livestock	88.2	87.0	93.0	96.6	94.4
2. Direct government payments	7.9	7.3	7.3	7.5	8.3
3. Farm-related income 2/	9.2	10.1	10.9	11.8	11.4
4. Gross cash income (1+2+3)	198.3	205.5	217.8	228.0	218.8
5. Cash expenses 3/,4/	147.6	153.6	161.4	167.2	165.8
6. NET CASH INCOME (4-5)	50.7	51.8	56.4	60.8	53.0
Farm income statement:					
7. Gross cash income (1+2+3)	198.3	205.5	217.8	228.0	218.8
8. Nonmoney income 5/	9.2	9.8	10.2	10.7	11.4
9. Inventory adjustment	8.3	-5.1	7.8	-0.4	-1.1
10. Total gross income (7+8+9)	215.8	210.1	235.8	238.3	229.2
11. Total expenses	167.5	174.1	182.4	188.4	187.2
12. NET FARM INCOME (10-11)	48.3	36.0	53.4	49.8	42.0

F = Forecast.

1/ Includes CCC loans. 2/ Income from custom work, machine hire, recreational activities, forest product sales, and other farm sources.

3/ Excludes depreciation and perquisites to hired labor. 4/ Excludes farm households. 5/ Value of home consumption of farm products plus the imputed rental value of operator dwellings. Totals may not add due to rounding.

Table 3--U.S. farm sector cash receipts from sales of agricultural commodities, 1994-98F

	1994	1995	1996	1997	1998F
	\$ billion				
Crop receipts:					
Food grains	9.5	10.4	10.7	10.6	8.9
Wheat	7.9	9.1	9.2	8.9	7.2
Rice	1.7	1.3	1.6	1.7	1.6
Feed crops	20.3	24.6	27.2	27.6	24.1
Corn	14.7	19.0	20.7	20.5	17.8
Barley, oats, and sorghum	2.0	2.3	2.6	2.5	2.0
Hay	3.7	3.3	3.9	4.6	4.4
Oil crops	14.7	15.5	16.4	19.9	17.7
Soybeans	12.8	13.9	14.8	18.3	16.0
Peanuts	1.2	1.0	1.0	0.9	1.0
Other oil crops					
Cotton (lint and seed)	6.7	6.9	7.0	6.5	5.9
Tobacco	2.7	2.5	2.8	2.9	3.1
Fruits and nuts	10.3	11.1	11.9	12.8	12.4
Vegetables	13.9	14.9	14.6	15.1	16.1
Greenhouse and nursery	10.0	10.5	10.9	11.4	11.6
All other crops	4.9	4.7	5.0	5.2	4.9
TOTAL CROPS	93.1	101.1	106.6	112.1	104.8
Livestock receipts:					
Red meats	46.8	44.8	44.4	49.9	45.6
Cattle and calves	36.4	34.0	31.1	36.1	35.3
Hogs	9.9	10.3	12.7	13.2	9.8
Sheep and lambs	0.5	0.6	0.6	0.6	0.5
Poultry and eggs	18.4	19.1	22.3	22.2	22.6
Broilers	11.4	11.8	13.9	14.2	15.1
Turkeys	2.6	2.8	3.1	2.9	2.6
Eggs	3.8	3.9	4.8	4.5	4.3
All dairy	19.9	19.9	22.8	21.0	22.7
Miscellaneous Livestock	3.0	3.2	3.4	3.5	3.5
TOTAL LIVESTOCK	88.2	87.0	93.0	96.6	94.4
TOTAL RECEIPTS	181.2	188.1	199.6	208.7	199.1

F = forecast.

fourth quarters, due in large part to increased marketings of fed cattle and the slowing in the liquidation of the cattle herd. The movement of feeder cattle into feedlots slowed in the latter part of the year, but the inventory of cattle in feedlots remained high at the end of 1997, as steer prices tailed off in the fourth quarter. Cattle prices were relatively firm in the earlier months of 1998 before trending lower.

The expansion among hog farmers that started in the spring of 1997 continued at a rapid pace through the rest of the year and was especially apparent in the fall pig crop. The big increase in the fall pig crop substantially boosted sales and was also reflected in the end-of-year inventory of hogs and pigs on farms. Prices of hogs declined substantially in the latter half of 1997 as the growth in pork exports slowed. In 1998, production has followed prices downward.

Expenses Moderate

Total farm expenses are forecast to be lower in 1998, the first year-to-year decrease since 1992. Interest rates and fuel costs are currently quite favorable for farmers, and low fuel costs help to keep nitrogen fertilizer prices low. Livestock producers will also incur lower expenses for feed and feeder livestock. Production expenses rose \$5.7 billion in 1997, contributing to the decline in net farm income from the 1996 record.

Farm production expenses in 1998 are reflecting the low-inflation environment of the overall economy, as prices in many other sectors are flat or falling. Reflecting the decline in capacity utilization and sharply increased productivity, producer prices fell in the first half of 1998. The spot crude oil price dropped to below \$14 per barrel, down sharply from the \$23 peak of last fall, and prices declined for most farm inputs originating off the farm. Farm fuel prices fell 16 percent in the first half of 1998, while fertilizer prices declined 5 percent, led by a double-digit fall in nitrogen-based fertilizers. While fertilizer demand weakened with lower field crop price expectations, the supply of nitrogen-based fertilizer rose as lower natural gas prices cut production costs. The tight U.S. labor market has generated higher real wage rates in 1998. The farm sector was no exception, as farm wages rose 6 percent in the first half of 1998.

Global Events Influence Farm Income Forecasts

For agriculture, 1996 was a truly exceptional year with record high farm income, above average yields for major crops, and prices that remained unusually high. The large production was absorbed by export markets, with rapidly growing emerging economies maintaining strong demand for U.S. agricultural products. The situation in 1998 has changed considerably.

The slowing of global economic growth has exerted downward pressure on prices of all types of primary commodi-

ties, including crude oil and metals. Most countries for which exports of commodities are a significant component of economic activity have suffered adverse effects. The U.S. farm sector has been seriously affected, but, since agricultural production is only about 1 percent of gross domestic product (GDP), the decline in agricultural exports has had a minimal impact on the national economy. In Canada and Mexico, where commodity exports are a larger component of total exports, the effects on GDP have been greater, adding to pressure on the value of their currencies relative to the U.S. dollar.

Agriculture's performance in 1998 has been given little assistance from the domestic economy, as U.S. GDP growth slowed sharply from the first quarter's 5.5-percent rate to 1.6 percent in the second. Farm operators rely on off-farm sources for a substantial portion of their household income. Those employed in rural manufacturing industries have been affected by changes in global economic growth. Rural manufacturing employment fell in late 1997, reflecting its sensitivity to demand changes induced by a strengthening dollar and weakened world growth rates.

While most farmers and their producer organizations remain optimistic about the longer term potential for U.S. agriculture in a market-oriented global economy, the income outlook for 1998 reminds us that international markets offer risk as well as reward. The lower domestic prices for most agricultural commodities reflect the combined effects of increases in supplies available from competing exporting countries, and declining demand for exports.

Brazil and Argentina have just concluded an exceptionally good production season, with large harvests of corn and soybeans in the second quarter of this year. The firming of forecasts for a record soybean harvest by U.S. farmers is continuing to place downward pressure on soybean prices due to prospects of large world supplies. Pressures on corn prices from an expected large corn harvest of 9.74 billion bushels may be mitigated by higher than anticipated corn exports.

Growth in the economies of Southeast Asia in 1995, 1996, and the early months of 1997 translated into demand for U.S. agricultural products that helped to support commodity prices and boost farm income. These economies began to falter in the summer of 1997 and have yet to recover, which has depressed demand for imports of agricultural commodities.

In 1998, economic difficulties in Japan have led to a substantial depreciation in the value of the yen, which reduced import demand in Japan and simultaneously lowered the prices of Japanese exports. These consequences are contributing to lower economic growth and rising concern about maintenance of currency values in the countries of Southeast Asia and China. The recent precipitous decline of

Table 4--U.S farm sector production expenses, 1994-98F

	1994	1995	1996	1997	1998F
	\$ billion				
Farm origin inputs	41.3	41.6	42.7	45.7	43.9
Feed	22.6	23.8	25.2	25.2	24.5
Livestock	13.3	12.3	11.2	13.8	12.8
Seed	5.4	5.5	6.2	6.7	6.7
Manufactured inputs	24.4	26.2	28.6	29.0	29.0
Fertilizer & lime	9.2	10.0	10.9	10.9	11.0
Fuels and oils	5.3	5.4	6.0	6.2	6.2
Electricity	2.7	3.0	3.2	3.0	3.0
Pesticides	7.2	7.7	8.5	8.8	8.8
Total interest charges	11.7	12.7	13.2	13.7	13.6
Short-term interest	6.0	6.7	6.9	7.1	7.1
Real estate interest	5.8	6.0	6.4	6.5	6.5
Other operating expenses	53.1	56.0	57.4	60.4	61.1
Repair and maintenance	9.1	9.5	10.3	10.4	10.6
Hired & contract labor expenses	15.3	16.3	17.5	18.6	19.3
Machine hire & custom work	4.8	4.8	4.7	4.8	4.8
Marketing, storage & transportation	6.8	7.2	6.9	7.1	7.2
Misc. operating expenses	17.1	18.3	17.9	19.4	19.2
Overhead expenses	36.9	37.6	40.5	39.7	39.6
Capital consumption	18.7	19.1	19.4	19.5	19.7
Property Taxes	6.5	6.7	6.8	7.0	7.0
Net rent to non-operator landlords	11.8	11.8	14.3	13.2	12.9
TOTAL PRODUCTION EXPENSES	167.5	174.1	182.4	188.4	187.2
All Other Expenses				96.8	97.5
Noncash expenses	15.4	15.7	15.9	15.8	16.1
Labor perquisites	0.4	0.6	0.6	0.6	0.6
Net Capital consumption	14.9	15.1	15.3	15.2	15.5
Cap. cons. exc. dwellings	16.3	16.5	16.7	16.6	16.9
Landlord capital consumption 1.	1.4	1.4	1.4	1.4	1.4
Dwelling expenses	4.5	4.8	5.2	5.5	5.2
Capital consumption	2.4	2.6	2.7	2.9	2.8
Interest 3/	0.4	0.4	0.4	0.5	0.5
Taxes	0.8	0.8	0.8	0.9	0.9
Repairs & maintenance	0.5	0.5	0.8	0.9	0.5
Insurance	0.4	0.4	0.4	0.4	0.4
CASH EXPENSES 2/	147.6	153.6	161.4	167.2	165.8

F = forecast.

1/ Sector capital consumption minus landlord capital consumption equals net capital consumption excluding dwellings.

2/ Total expenses minus noncash and operator dwelling expenses.

3/ 1997-98 input, not forecast formula.

the Russian ruble and the decline in the Canadian dollar and Mexican peso add to the pessimistic outlook for exports.

Because the U.S. dollar is the currency to which individuals and companies in other countries seek to convert their capital in periods of economic crisis, the value of the dollar has risen and may continue to appreciate against the currencies of some or all of these countries. The immediate consequence of appreciation of the dollar is a relative rise in the foreign currency price of U.S. agricultural products accompanied by a drop in demand in potential importing countries and a decline in competitiveness relative to several other exporting countries. Soybeans is one of the commodities most affected by depreciating currencies because many

countries export soybeans. Wheat, corn, hogs, beef, and hides have also experienced declines in export demand.

Impacts of Reduced Income Vary by Type of Farm, Region

Not all farms will share equally in the projected decline in 1998 net farm income. Farmers who specialize in the production of grains and soybeans are currently experiencing declining commodity prices, while farmers who specialize in cattle production are benefiting from lower feed costs. Beef accounts for about 17 percent of the agricultural sector's total value of production. Prices are up from their lows of 2 years ago and low grain prices translate into lower feed prices and higher profits. The economic cycles in the live-

stock sector and crop sector can be counter to each other, with conditions in one being on the upswing as the other is less favorable.

Since net farm income is a production-based measure, the quantities of production are key income determinants for the United States and any geographic subregions. Some areas will be adversely affected by production problems to a far greater extent than is evident in the national forecast. Disease has been affecting wheat production in the Northern Plains for several years. Excessive rainfall in California caused production problems earlier in 1998 and dry conditions have severely affected production in Texas, Florida, and parts of the Delta.

Corn is the Nation's biggest crop in terms of value. Corn yields are quite sensitive to weather conditions during critical stages in the production process. As a consequence, corn production has accounted for much of the volatility in net farm income over time. In 1998, the Corn Belt States have so far had favorable weather for the third consecutive year, a rather unusual sequence of good fortune, but the large supplies negatively affect market prices.

Farmers Manage Inventories to Maintain Cash Income

Net cash income is a measure frequently relied upon as an indicator of farmers' resilience in times of economic and financial stress, because it is a solvency measure of cash earnings generated from business activities within the calendar year. Net cash income is what is available to meet fam-

ily living expenses and make debt payments. It does not allow for replacement of capital stock consumed in the production activities but does indicate if farmers can stay afloat. Normally, in years of lower production, farmers maintain cash earnings by drawing down inventories.

Farmers managed net cash income by selling an unusually small percentage of the large 1996 harvest prior to the end of the year, postponing the sales to 1997. The unsold portion of the 1996 harvest was reflected in 1996 via additions to inventories. This inter-year postponement of sales shifted cash income from 1996 to 1997. Crop harvests in 1997 were as large as those of 1996, and farmers carried substantial stocks into 1998. Consequently, farmers are in a position to offset some of the effects of low prices by selling large quantities in 1998. However, because capacity utilization in grain elevators is higher in 1998 than in recent years, the lack of storage space for the fall harvests of corn and soybeans means more of these crops are moving directly to market, depressing prices further.

World stocks, which are largely owned by grain merchants and governments, influence market prices, but only farmer-owned stocks contribute directly to farmers' net cash income. Fortunately, producers do have large supplies of commodities to sell in 1998, both from inventories and new production. Each farmer also has the option of choosing the timing of sale to suit his/her individual situation. If they need money in 1998 or are not optimistic about the outlook for prices, farmers may sell in 1998. If they have expectations of higher prices in 1999, they may maintain large quantities in inventory and postpone sales.

Farm Business Debt Rise Anticipated To Slow in 1998

Farm debt is expected rise over 4 percent in 1998, following an increase of 6 percent in 1997. Commercial banks' share of total farm debt is projected to rise in both 1997 and 1998. Lower net cash income and higher debt will translate into a rise in farmers' use of debt repayment capacity in 1998. Use of credit capacity is expected to rise above 60 percent for the first time since 1986.

Farm business debt is anticipated to reach \$172 billion by the end of 1998, its highest level since 1985. The expected increase of \$6.6 billion during 1998 will mark the sixth consecutive year of rising farm debt. The expansion in outstanding loan balances follows a rise of over \$9 billion in 1997, the largest such increase since 1980.

Farm Debt Up 6 Percent in 1997

The rate of growth in debt is expected to fall slightly in 1998 from 1997's 6-percent rate, which represented an acceleration of the steady growth of indebtedness that began in 1993. The increases in loan balances during 1997 and 1998 constitute a significant rise in the annual growth rate of farm debt, which has approached 3.5 percent only twice since 1980. By the end of 1998, total farm business debt is expected to have risen almost \$32 billion since the beginning of 1993, a cumulative increase of 24 percent. However, yearend 1998 debt is expected to stand about \$22 billion below its 1984 peak.

The 1997 and projected 1998 increases are relatively small compared with annual debt growth during the 1970s, when outstanding loan balances rose at an average annual rate of over 12 percent. The rapid growth in debt financing during that period is an often cited contributor of the farm financial crisis that emerged in the mid-1980s.

While the recent rise in debt may result in additional financial difficulty for some farm operators, it does not indicate widespread financial distress in the farm sector. Despite the increase in debt during the 1990s, farm business balance sheets have shown steady improvement. Debt-to-asset ratios, expected to stabilize at about 15.3 percent for 1997 and 1998, have improved throughout the 1990s as the rise in the value of farm business assets, especially farm real estate values, has been proportionally greater than the increase in farm business debt. Debt levels are expected to remain at about 18 percent of equity, near the level of the past 3 years. The improved equity position of most farm operations during the 1990s has given producers an added margin to lessen the impact of short-term declines in income.

Figure 13

Year-to-year change in farm debt



Forecast for 1997 and 1998.

Source: Agricultural Resource Management Study, USDA.

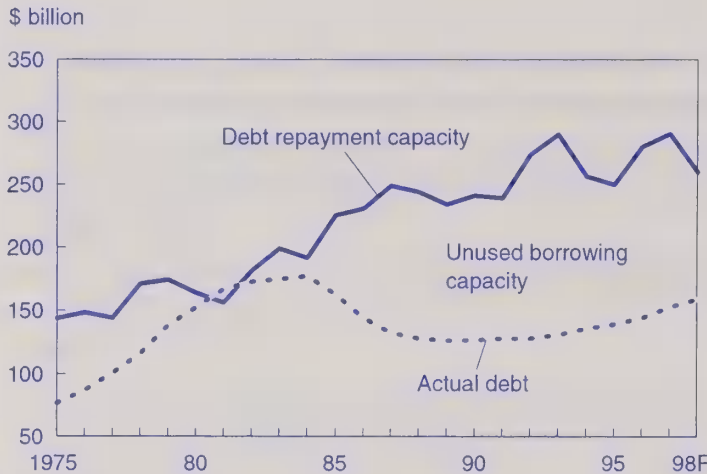
Farmers' Use of Repayment Capacity To Rise in 1998

Farmers are expected to use their available credit lines more fully in 1998. Lenders generally require that no more than 80 percent of a loan applicant's available income be used for repayment of principal and interest on loans. This income available for debt service (measured as net cash income plus interest expense) can be used to determine the maximum amount of loan payment a farmer could make. Given current market interest rates and an established repayment period, the maximum debt that a farmer could carry with this loan payment can be determined. Using current bank interest rates and a 7-year repayment period, maximum feasible debt conceptually measures the line of credit that could be available to farmers.

Farm debt repayment capacity use (actual debt expressed as a percentage of maximum feasible debt) effectively measures the extent to which farmers are using their available lines of credit. This ratio indicates that, in 1998, farmers are expected to use over 61 percent of the debt that could be supported by their current incomes. While this is the highest

Figure 14

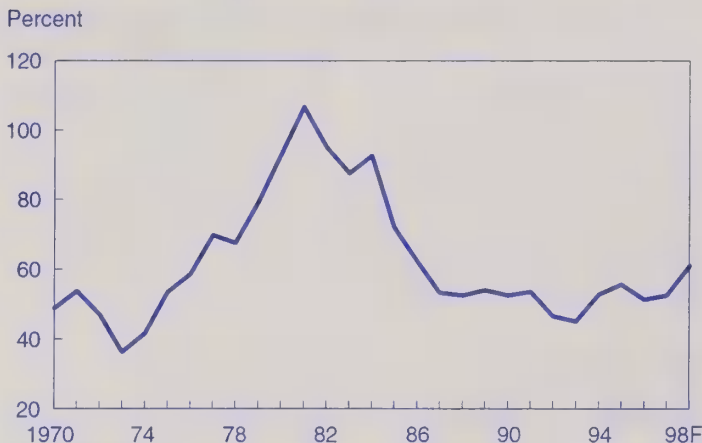
Farm operators' actual debt rising in 1998 while debt repayment capacity declines



Source: Agricultural Resource Management Study, USDA.

Figure 15

Utilization of debt repayment capacity expected to be higher in 1998



Actual debt compared with a hypothetical maximum debt that could be carried based upon repayment capacity.

Source: Agricultural Resource Management Study, USDA.

value this measure has attained since 1986, it is substantially below levels during 1979-85, when it consistently measured above 70 percent.

Comparison with more recent history provides additional evidence that some farmers are likely to experience rising financial difficulty in 1998. Use of debt repayment capacity rose from 45 percent in 1993 to 56 percent in 1995, then dropped to 51 percent in 1996, as high net cash income levels and lower interest rates offset the effect of the rise in outstanding debt. In 1998 continuing favorable interest rates will not be sufficient to offset the combined effects of rising debt and lower net cash income, causing debt repayment capacity use to rise from 53 percent in 1997 to 61 percent this year.

Nonreal Estate Debt Rises 8 Percent In 1997

The bulk of the 1997 increase in total debt was due to changes in nonreal estate debt, which rose almost 8 percent. Nonreal estate debt is anticipated to rise almost 5 percent in 1998. Much of these recent increases can be attributed to financing of farm equipment sales, which has been robust throughout the 1990s, and especially so in the first half of 1998. While machinery sales are expected to slow during the second half of the year as lower farm income softens demand, credit for purchases during the first half has already been extended. After reporting an increase in net sales of 8 percent for the first half of 1998, Case Corporation announced a 9-percent farm equipment production cutback in anticipation of slackening demand in both domestic and international markets.

Farm real estate debt is expected to rise less than 3.5 percent in 1998, following a 4.5-percent gain in 1997. Demand for good agricultural land may be supported by farm operations seeking to expand to increase production efficiency.

Banks' Farm Loan Growth Accelerated In 1997

Farm debt is held by commercial banks, the Farm Credit System, USDA's Farm Service Agency, and life insurance companies, among others. Farm debt held by banks is expected to rise about 5 percent in 1998, following an increase of nearly 9 percent in 1997. Bank debt rose over \$24 billion from the beginning of 1989 through the end of 1997, a gain of almost 57 percent. During that period banks' share of the total farm debt market increased from less than 33 percent to almost 41 percent.

Bank nonreal estate debt is projected to rise about 5 percent in 1998, despite a first-half surge in nonreal estate loan balances, which stood 8.5 percent higher than at the end of June 1997. This follows year-to-year increases of 10 percent in first-quarter 1998, and 9 percent in fourth-quarter 1997. The changes were at least partially due to farmers' yearend management of inventories for income tax considerations. Loans secured by farmland rose over 8 percent in 1997 and are expected to increase by almost 6 percent in 1998.

Agricultural banks entered 1998 well capitalized, reporting ample funds to meet the credit needs of qualified borrowers. Some bankers have reported that current credit analysis, using market prices prevailing in the late summer of 1998, suggests that a growing number of borrowers may have difficulty cash flowing loans. Charge-offs may rise during the remainder of 1998 as banks now move to quickly resolve problem loans, but banks are well positioned to deal with borrower difficulties.

Table 5--Farm business debt outstanding, by lender, December 31, selected years, 1984-98F

Lender	1984	1988	1992	1996	1997	1998F
	Million dollars					Bil \$
Real estate	106,697	78,096	75,619	81,930	85,637	89
Farm Credit System	46,596	28,542	25,476	25,819	27,193	28
Farm Service Agency 1/	9,523	9,013	6,413	4,719	4,379	4
Life insurance companies	11,891	9,065	8,783	9,493	9,726	10
Commercial banks	9,626	14,486	18,809	23,354	25,324	27
CCC storage facility	623	21	2	0	0	0
Individuals & others	28,438	16,969	16,137	18,544	19,015	20
Nonreal estate	87,091	61,734	63,631	74,225	79,904	84
Commercial banks	37,619	28,309	32,912	38,344	41,713	44
Farm Credit System	18,092	8,766	10,346	14,015	15,243	16
Farm Service Agency 1/	13,740	12,899	7,143	4,422	4,133	4
Individuals & others	17,640	11,760	13,230	17,444	18,816	20
Total debt	193,788	139,831	139,250	156,155	165,541	172
Farm Credit System	64,688	37,308	35,821	39,834	42,435	44
Farm Service Agency 1/	23,263	21,913	13,556	9,141	8,512	8
Commercial banks	47,245	42,795	51,721	61,697	67,037	70
Life insurance companies	11,891	9,065	8,783	9,493	9,726	10
Individuals & others	46,701	28,750	29,369	35,988	37,831	40

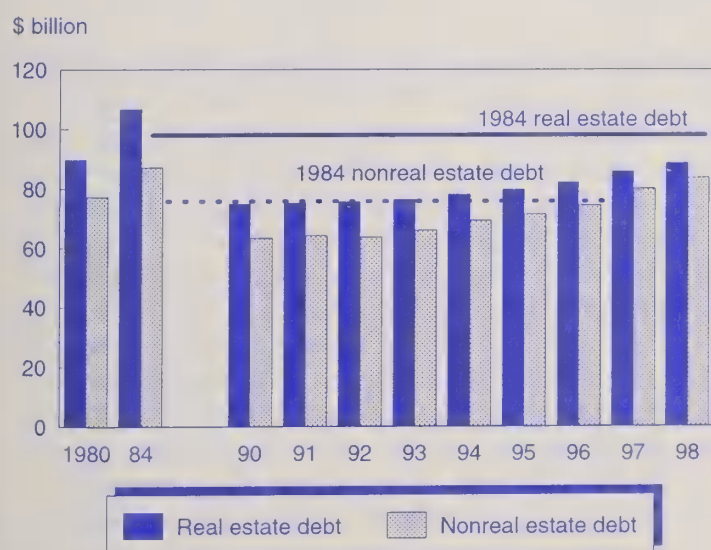
1/ Formerly Farmers' Home Administration.

Bank officers responding to surveys conducted by various Federal Reserve Banks indicate that problems may be building in the areas served by the Minneapolis, Chicago, Kansas City, and Dallas Federal Reserve Districts, where bankers report lower loan repayment rates and higher numbers of renewals and extensions. These factors, together with the current projections for 1998 net cash income, expected to be about 13 percent below 1997 levels, suggest that some farmers may begin to experience repayment diffi-

culties in 1998. However, bankers in most areas also report that demand for loans has remained strong and fund availability is generally adequate.

Banks continue to report rising loan-to-deposit ratios, which averaged 0.689 at the end of the first quarter of 1998. This measure, up from 0.55 during 1990-92, has reached its highest level since the early 1980s. But changes in banking, including expanded access to nondeposit funds, cloud interpretation of this rise. Even though banks in the Chicago District recorded average first quarter loan-to-deposit ratios of .726, about 82 percent of district bankers felt that this ratio was at or below the desired level. Despite the potential to use Federal Home Loan Bank and Farmer Mac funding for loans, substantial additional increases in the loan-to-deposit ratios might put downward pressure on farm credit availability, as some banks reserve their more restricted supply of loanable funds for their most credit-worthy borrowers.

Figure 16
**Farm business debt rising
but still below early 1980s**



Source: Agricultural Resource Management Study, USDA.

Farm Credit System Loans Rise

Farm business debt owed to the Farm Credit System (FCS) is forecast to increase about 4 percent in 1998, following increases of 6.5 percent in both 1996 and 1997. FCS mortgage debt is projected to rise about 4 percent in 1998, adding to gains of 5.3 percent 1997 and 3.5 percent in 1996. The increases indicate that recent attempts by FCS to regain farm mortgage market share have been successful, following a decline from over \$46 billion in 1984 to less than \$25 billion during 1993-95. Projections for 1998 indicate that yearend FCS farm mortgage debt will surpass \$28 billion for the first time since 1988. FCS' share of the farm mort-

gage market is expected to reach 32 percent, a level not attained since 1993.

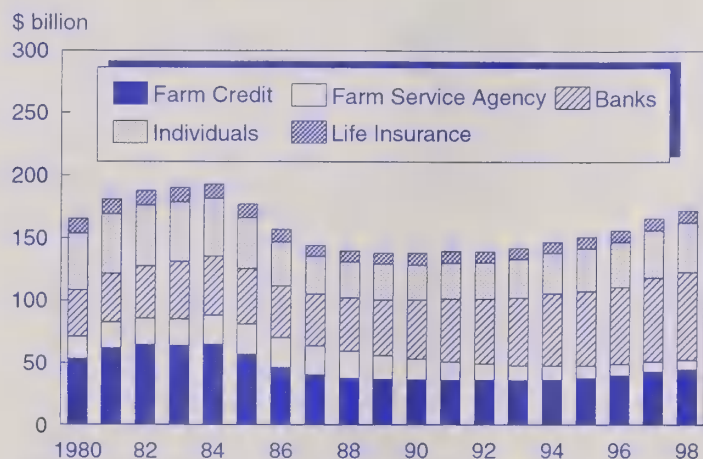
Preliminary projections indicate that growth of FCS nonreal estate loans will slow in 1998, as an increase of less than 4 percent follows gains of almost 9 percent in 1997 and about 12 percent in both 1995 and 1996. FCS nonreal estate debt is projected at almost \$16 billion by the end of 1998, up more than 80 percent since 1988. During the period of relatively slow growth in loan volume prior to 1995, FCS institutions streamlined through mergers and profited from improved net interest margins. FCS' share of the farm busi-

ness debt market appears to have now stabilized at about 25 percent. FCS institutions appear to be well positioned to be a competitive force in farm credit markets in the future.

The FCS reported solid financial results for the first half of 1998. A survey recently conducted by the Farm Credit Council indicates that some problems may on the horizon. Farm Credit associations indicated that loan demand was strong through the first half of 1998, but more associations were experiencing a decline in loan performance, and most anticipated additional financial stress over the next year.

Figure 17

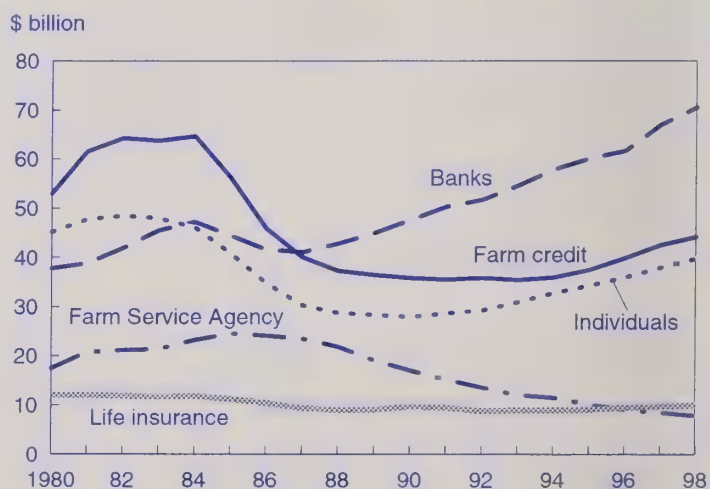
Banks and Farm Credit System provide two-thirds of all farm business debt



Source: Agricultural Resource Management Study, USDA.

Figure 18

Banks' share of farm business credit rising rapidly



Source: Agricultural Resource Management Study, USDA.

Farm Households Depend on Both Farm and Off-Farm Income Sources

On average, farm operator households earned about \$52,000 in 1997, according to USDA's most recent farm survey data. The 1998 outlook is for incomes to remain fairly stable. Off-farm income is an important source of total household income for all size farm operations, even large family farms.

Farm operator households received an average of \$52,300 in total income in 1997. On average, most of their income (\$46,400) came from off-farm sources. Across all farm sizes and types, approximately \$6,000 per household came from farming activities.

Compared with the previous year, there were no statistically significant changes in average total household income, income from farming activities, or income from off-farm sources. The share of household income from farming activities, however, declined from 15.7 percent in 1996 to 11.4 percent in 1997. This reflects the lower net cash farm income generated by the farm sector in 1997. The forecast for 1998 indicates household income about the same as in 1997.

Dependence on Farming

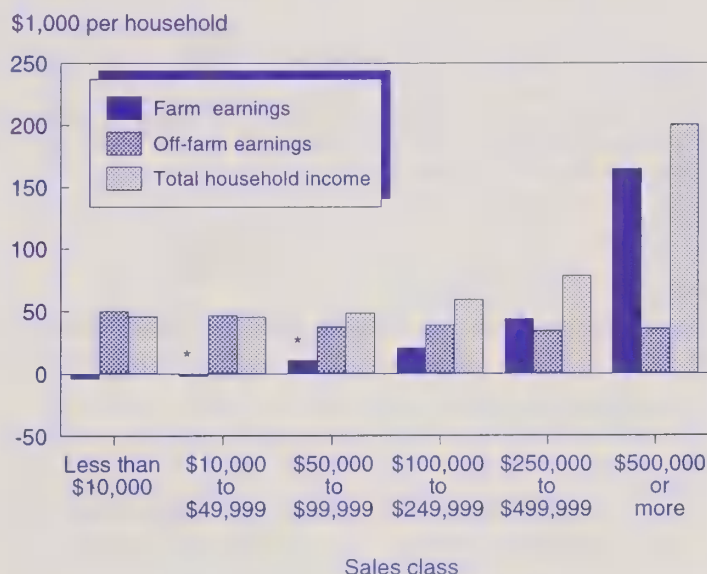
An average of only \$6,000 in income from farming activities per operator household may seem low. The low average, however, reflects the very small size of most U.S. farms. The official farm definition requires only \$1,000 worth of sales to qualify as a farm. Limited sales typically result from a modest level of resources devoted to farming or from a low return on farm assets. Approximately half of U.S. farm households operated farms with sales less than \$10,000.

There is substantial variation among farm households in their dependence on farming. Households operating very small farms typically depend much less on farm income than households operating larger farms (figure 19). For example, farms with sales less than \$10,000 actually lost an average of \$4,300 per farm from farming. Fortunately, their off-farm income averaged \$50,500. Most operators of farms with sales less than \$10,000 reported that they had a nonfarm occupation (59 percent) or that they were retired (27 percent). Households operating farms with sales between \$10,000 and \$49,999 also lost money farming, but not as much. In contrast, the share of income from farming for households operating larger farms ranged from 23 percent for households with sales between \$50,000 and \$99,999 to 82 percent for households with sales of \$500,000 or more. Nevertheless, households operating farms in the higher sales classes still

Figure 19

Average operator household income by source and by sales class, 1997

Average farm earnings per household increase with sales class



*The relative standard error exceeds 25 percent, but is no more than 50 percent.

Source: Agricultural Resource Management Study, USDA.

may receive substantial off-farm income, which can help buffer them from adverse conditions in the farm sector.

A similar variation also occurs when examining the distribution of households by the specialization of the farm they operate (figure 20). Households operating farms that specialize in beef or "other livestock" lost money from farming, while households specializing in other commodities averaged a positive income from farming. Again, a high percentage (48 percent) of farms were in groups that lost money farming, on average.

Farm Typology

The National Commission on Small Farms was established in 1997 by the Secretary of Agriculture to examine issues facing small farms. In its report, *A Time to Act*, released in

Figure 20

Average operator household income by source and by type of farm, 1997

Households operating farms specializing in beef or "other livestock" depended on off-farm sources for virtually all their income.

\$1,000 per household



*The relative standard error exceeds 25 percent, but is no more than 50 percent.

**The relative standard error exceeds 50 percent, but is no more than 75 percent.

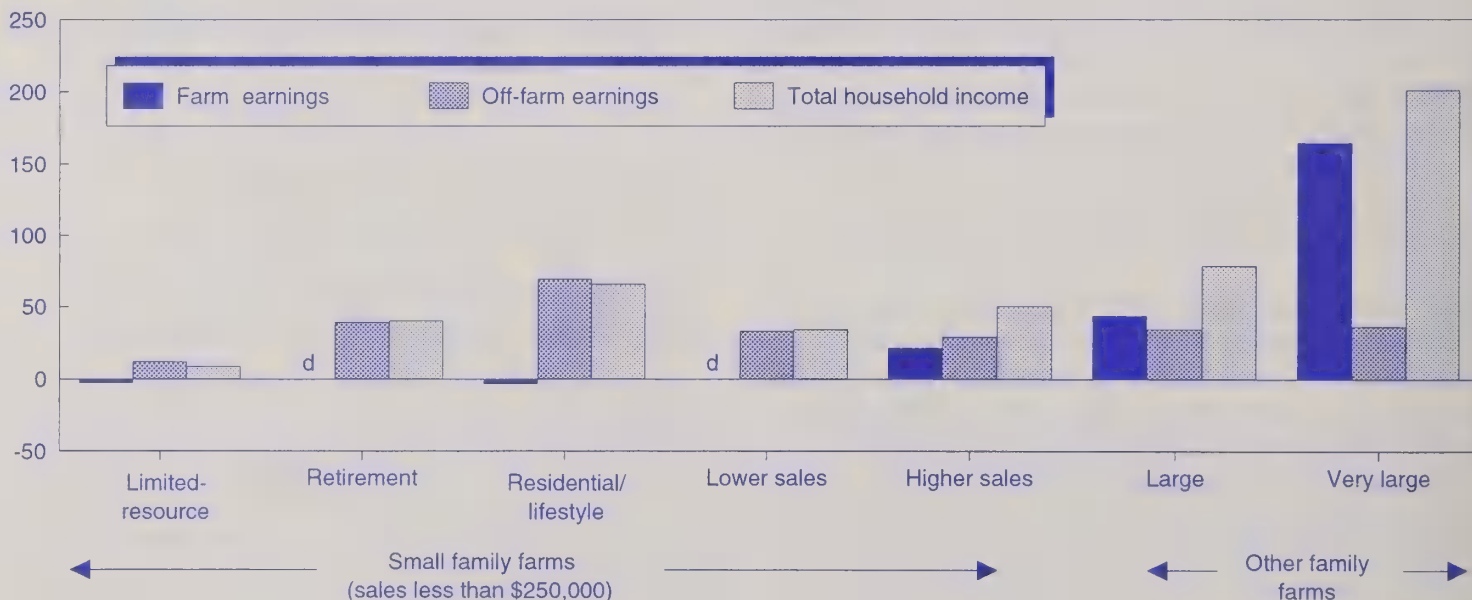
Source: Agricultural Resource Management Study, USDA.

Figure 21

Average operator household income by source and by farm typology groups, 1997

Households operating limited-resource, retirement, residential/lifestyle, and lower sales farms depend on off-farm sources for most of their income.

\$1,000 per household



d = CV for farm earnings estimate is greater than 75 percent.

Source: Agricultural Resource Management Study, USDA.

January 1998, the Commission considered a farm to be "small" if its gross sales did not exceed \$250,000. The Commission set the cutoff high enough to include more farm families of relatively modest income who may need or want to improve their net farm income. As a result, the Commission's small farms category includes nine out of ten U.S. farms.

In response to the Commission, ERS developed a "farm typology" that sorts farms on the basis of the major occupation of their operators, their farm sales class, and other household and farm characteristics (see box). The typology divides farms into smaller, more homogeneous groups.

The Farm Typology

Small Family Farms (sales less than \$250,000)

1. **Limited-resource farms.** Any small farm with: (1) gross sales less than \$100,000, (2) total farm assets less than \$150,000, and (3) total operator household income less than \$20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.
2. **Retirement farms.** Small farms whose operators report they are retired. (Excludes limited-resource farms operated by retired farmers.)
3. **Residential/lifestyle farms.** Small farms whose operators report they had a major occupation other than farming. (Excludes limited-resource farms with operators reporting a nonfarm major occupation.)
4. **Farming occupation/lower-sales.** Small farms with sales less than \$100,000 whose operators report farming as their major occupation. (Excludes limited-resource farms whose operators report farming as their major occupation.)
5. **Farming occupation/higher-sales.** Small farms with sales between \$100,000 and \$249,999 whose operators report farming as their major occupation.

Other Farms

6. **Large family farms.** Sales between \$250,000 and \$499,999.
7. **Very large family farms.** Sales of \$500,000 or more.
8. **Nonfamily farms.** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

Estimating Farm Operator Household Income

The Agricultural Resource Management Study (ARMS), conducted by ERS and the National Agricultural Statistics Service (NASS) provides the data necessary for estimating operator households' income. Estimates based on the ARMS differ from what would have occurred if a complete enumeration had been taken. However, the coefficient of variation (CV), a measure of sampling variability, is available from survey results. According to the guidelines for use of the ARMS, any estimate with a CV greater than 25 percent must be identified and used with care.

The operator of a farm is the person who makes most of the day-to-day decisions about the farm, regardless of whether others share management responsibility. The number of farm operators is the same as the number of farms. The number of farms for which the ARMS collects household income data, however, is slightly smaller than the total count of farms. The ARMS collects information about the operator household only if the farm is organized as an individual operation, a partnership, or a family corporation.

The Current Population Survey (CPS), conducted by the Bureau of the Census, is the source of official U.S. household income statistics. Thus, calculating an estimate of farm household income from the ARMS that is consistent with CPS methodology allows comparing income between farm operator households and all U.S. households. The CPS definition of farm self-employment income is net money income from the operation of a farm by a person on his or her own account. CPS self-employment income includes income received as cash, but excludes in-kind or nonmoney receipts. The CPS definition departs from a strictly cash concept by deducting depreciation, a noncash business expense, from the income of self-employed people.

Farm self-employment income from ARMS is the sum of the operator household's share of adjusted farm business income, wages paid to the operator, and net rental income from renting farmland. Adding other farm-related earnings of the operator household yields earnings of the operator household from farming activities. Finally, total operator household income is calculated by adding earnings from off-farm sources.

Typology groups with substantial average earnings from farming are: higher-sales small farms, large family farms, and very large family farms. In contrast, households operating limited-resource farms, retirement, residential/lifestyle, and lower-sales small farms received practically all their income from off-farm sources, on average. Again, households that depended heavily on off-farm income accounted for 85 percent of operator households.

Economic Well-Being

Earnings of the operator household from farming activities are not a complete measure of economic well-being provided by the farm. They leave out some resources the farm

business makes available to the household. For example, depreciation is an expense deducted from income that may not actually be spent during the current year (see box). Nonmoney income, such as the imputed rental value of a farm-owned dwelling, is also excluded from the farm earnings measure. Nonmoney income represents a business contribution to household income because it frees up household cash that would otherwise be spent on housing. Finally, earnings of the operator household from farming activities do not reflect the large net worth and real estate base of many farm operator households.

Financial Condition of U.S. Farm Businesses Are Sound Entering 1998

At the beginning of 1998, financial statements reported by farm businesses indicated that two of every three farms were in a favorable financial position, a very slight decline from a year earlier. More than half of all farms continued to report no debt outstanding on January 1, 1998. Just over 4 percent of farms reported debt-to-asset ratios greater than 70 percent, compared with 12 percent in 1987.

Most farm businesses began 1998 on a sound financial footing. Even though 1997 prices for many commodities retreated from 1996's unusually high levels, a turnaround in the cattle industry and near record crop harvests generated widespread profits to the Nation's farms and ranches. But not all farmers registered a good year in 1997. This was particularly evident in the Northern Plains region, where poor growing conditions (spring flooding), and diminished wheat yields resulting from scab left many producers with substantial losses and considerable financial uncertainty entering 1998.

Agriculture is a diverse sector represented by a complex mix of business enterprises. This section focuses on the income and financial condition of farming operations with \$50,000 or more of gross farm sales. These farms generate the majority of economic activity in the sector. This analysis draws from data reported in USDA's 1997 Agricultural Resource Management Study (ARMS).

Overall Financial Performance

Even though most farm businesses are financially sound, each year some have financial difficulty. On January 1, 1998, USDA classified two of every three farm businesses (65.4 percent) in a favorable financial position (figure 22). This represents a modest decline from a year earlier when 67.9 percent of farms were considered to be in a favorable financial position, but remains one of the highest of the 1990s. These profitable, low-leveraged operations entered 1998 with sufficient funds to take advantage of investment and expansion opportunities. At the opposite extreme, 5.6 percent of farm businesses began 1998 in a vulnerable financial position. The share of vulnerable farms was slightly higher than the previous year, but below the 7.8 percent registered in 1995.

While the 1998 scenario of large crops, a strong dollar, and falling exports may be reminiscent of conditions leading to the farm financial crisis of the 1980s, farm operators have since undertaken many cost-containing production adjustments. Balance sheet improvements contribute to a more financially resilient U.S. farm sector entering 1998. Overall, farm businesses are much better positioned to

absorb the shock of temporary income declines than they were in the 1980s.

This is not to suggest that farms in all regions of the country recorded financial progress in 1997. Deterioration in overall financial performance occurred in the Lake States, Northern Plains, Corn Belt, and Pacific regions. Each of these regions exhibited an increase in the percentage of farm businesses classified in a vulnerable financial position. Despite a decline in overall financial performance, the Corn Belt retained its ranking as one of the regions with the highest percentage of financially favorable farm businesses.

Farm businesses that specialized in the production of cash grains, particularly wheat and corn retreated from 1996's financial success, while beef cattle farms and ranches had noticeable improvement in overall financial performance in 1997. Producers of the major crops are not likely to fare as

Classification of Overall Financial Performance

The following perspective on the overall financial performance of farm businesses simultaneously combines income and solvency measures.

Favorable = Positive net income and a debt/asset ratio less than 0.40.

Marginal income = Negative net income and a debt/asset ratio of 0.40 or less.

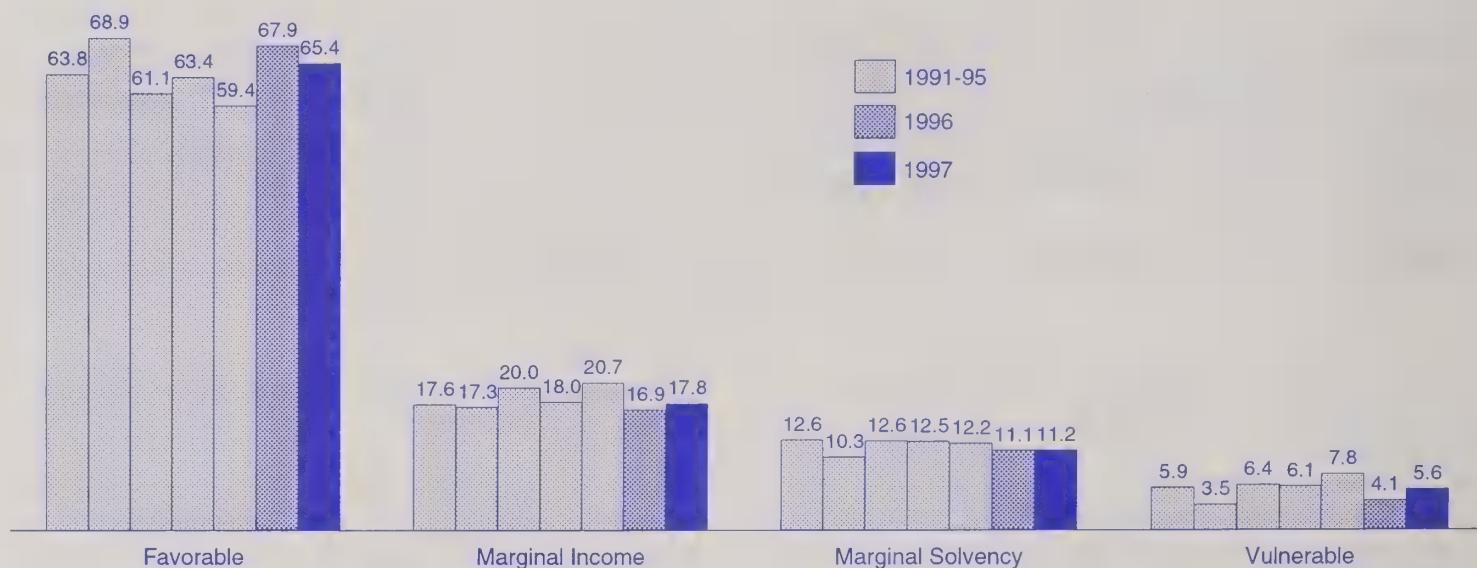
Marginal solvency = Positive net income and debt/asset ratios above 0.40.

Vulnerable = Negative net income and debt/asset ratios above 0.40.

Figure 22

Most farm businesses entered 1998 in good financial shape with two out of every three in a favorable financial position and relatively modest occurrences of financial vulnerability

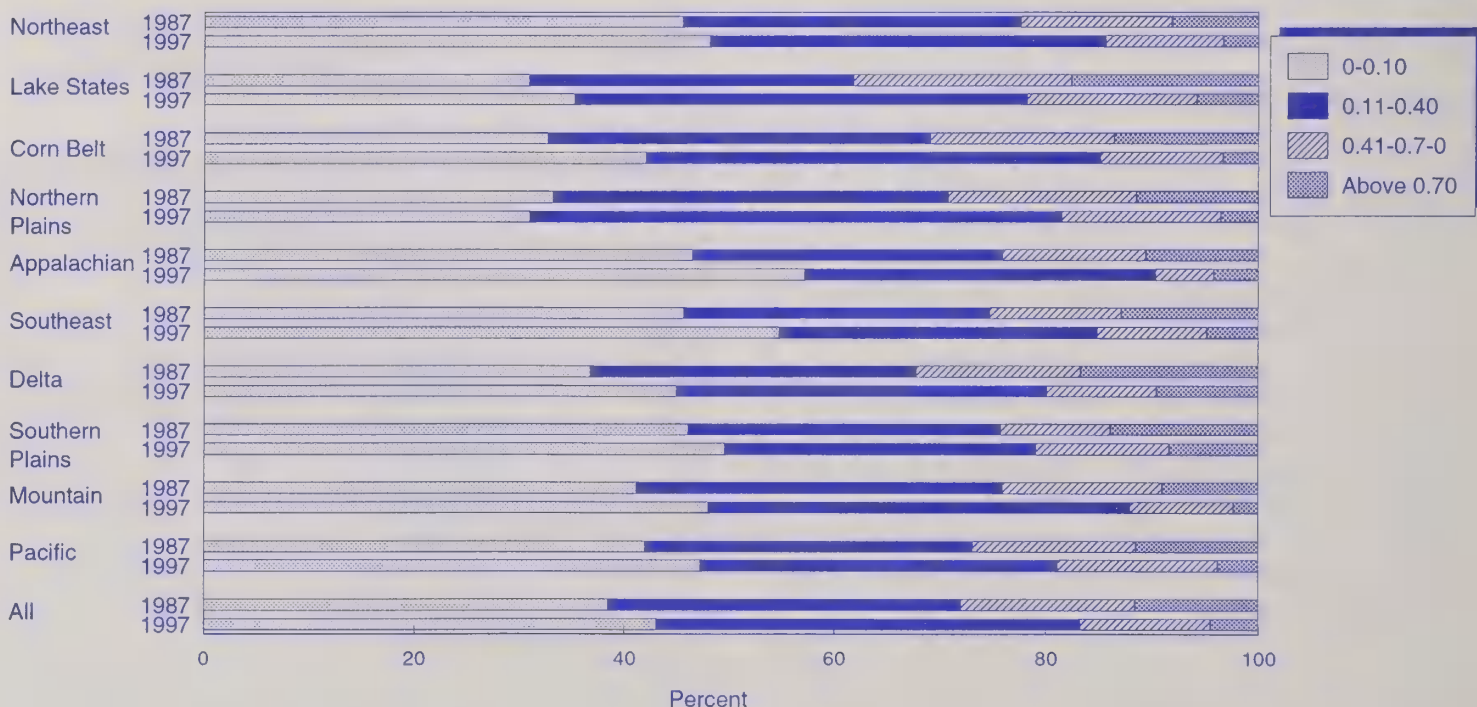
Percent



Source: Agricultural Resource Management Study, USDA.

Figure 23

Fewer farm businesses are highly leveraged when compared with the mid-1980s



Source: Agricultural Resource Management Study, USDA.

well in 1998. Anticipated large harvests of soybeans, wheat, and corn, coupled with declining demand in export markets, have kept downward pressure on prices through most of the summer of 1998. Despite high production levels, cash receipts for these commodities are expected to decline from 1997. Operations in regions experiencing reduced production due to crop disease, pest infestation, or dry weather could face increasing financial difficulty, since they will likely receive sharply lower prices for smaller crops.

Farm Business Income

Farm business before-tax earnings in 1997 were relatively consistent with the widespread profitability enjoyed in 1996. Net farm income, a comprehensive measure of farm business profits, averaged \$58,943 in 1997. This was a slight increase from 1996's \$55,384 and one of the highest levels reached during the 1990s. Larger gross incomes from higher livestock sales, steady amounts of government payments, and increased earnings from farm-related sources such as custom feeding generated an income increase that, on average, covered increased production expenses.

Farm Business Balance Sheet

Average net worth of farm businesses increased for the third consecutive year. Increasing farm real estate values and mod-

est increases in debt not only spurred increases in net worth, but also helped to hold the average debt/asset ratio at 1996's 0.17. Since the late 1980s most farm businesses have been reluctant to take on burdensome debt loads. That trend continued in 1997 with more than 80 percent ending the year with a debt/asset ratio below 0.40, indicating a small potential for cash flow problems from debt commitment and relatively little risk of insolvency. Just over 4 percent of farm businesses faced risk of insolvency. This group had a debt/asset ratio above 0.70. The number of highly leveraged farms was consistent with levels observed during the previous 5 years and remains well below the mid-1980s when more than 10 percent of farms were in this position.

While the balance sheet for the farm sector as a whole is expected to show little deterioration during 1998, some farm operations will likely experience increased financial stress. Lower incomes may tax the ability of heavily indebted farmers to meet their current debt service requirements, and debt loads may increase as farmers borrow against assets to meet short term production and living expenses. Rents and land values may begin to decline in some areas if lower income and profitability levels are perceived as continuing for an extended period of time. The potential combination of higher debt loads and lower asset values would worsen the financial position of affected farm operators.

Table 6--Financial data for farm businesses, 1993-97

Item	1993	1994	1995	1996	1997
Dollars per farm					
Income Statement					
Gross cash income	226,096	222,701	247,697	266,523	278,688
Livestock sales	97,908	90,562	97,833	92,240	98,105
Crop sales	92,192	102,520	116,041	140,221	136,068
Government payments	14,464	8,879	7,424	8,701	8,483
Other farm-related income	21,532	20,740	26,400	25,361	36,033
Cash expenses	179,848	175,667	194,866	202,869	217,013
Net cash income	46,248	47,034	52,832	63,654	61,675
Net farm income	37,997	38,690	39,126	55,384	58,943
Balance Sheet					
Assets	783,817	766,045	809,641	909,095	923,577
Debt	144,413	138,279	148,067	154,752	157,466
Equity	639,404	627,766	661,574	754,343	766,111
Debt/asset ratio	0.18	0.18	0.18	0.17	0.17

Data for farms reporting sales of \$50,000 or more.

Source: 1993-95 Farm Costs and Returns Survey; 1996-97 Agricultural Resource Management Study.

Financial Performance Varies for Different Farms Classified by Farm Typology

There are noticeable differences in the financial performance of farms and ranches when they are examined among the farm typology classes. Many smaller operations do not produce profits in their farming activities but are more dependent on off-farm income sources.

The financial condition of farm operator households and the financial performance of farms they manage differ considerably among household units classified by ERS' recently developed farm typology (see page 19). Analysis of 1997 ARMS data illustrates the diversity of U.S. farm operations. The farm business performance analysis presented previously concentrated on the farm business income and financial condition of operations with sales of \$50,000 or more. In contrast, this analysis addresses both the farm and non-farm dimensions of all farm operator households, including those with limited farm sales.

Application of farm business financial performance measures to operations in various typology classes reveals notable differences (table 7). Comparing overall financial performance with that presented in the previous section, adding farms with sales less than \$50,000 to the analysis reduces the portion of farms classified as favorable and vulnerable, and increases the share of farms with both low incomes and low debt levels. This is to be expected, since many smaller farms do not produce profits in their farming activities. Over 7 percent of limited resource farms were considered vulnerable in 1997, as were about 5 percent of farms with sales over \$250,000. Almost 78 percent of retirement farms were included in the favorable classification.

Comparison of farm financial performance measures recommended by the Farm Financial Standards Council reveals differences in viability of farming units in the various typology classes. Farms with sales under \$100,000, on average, run negative operating profit margins, and do not cover the full economic costs of production, generating inadequate farm income to report positive returns to assets and equity.

Limited resource farms tend to operate with small asset bases, use little debt financing, and generate fairly low levels of income. Moreover, low levels of working capital suggest that these operations have little cushion for financial emergencies. The debt/asset ratio for these farms is slightly below the average for all farms. On average, these farms generate negative returns to assets and equity and off-farm income barely covers expected family living expenses.

Even though retirement and residential/lifestyle farms employ more assets and generate slightly higher farm earnings, they rely on off-farm income to meet living expenses and keep farm debt levels manageable. Retirement farms appear to exercise fairly tight cost control measures, while farm income on residential/lifestyle farms falls short of operating expenses.

In contrast, operators indicating farming as their primary occupation are likely to manage farms that generate sufficient income to cover operating expenses. For the 1997 calendar year, farms with sales of \$100,000-\$250,000 reported economic cost-to-output ratios slightly above 100 percent, indicating that they were unable to cover full economic costs of production. Generally, only farms with sales greater than \$250,000 produce enough revenue to meet the full economic costs. On average, these farms have additional working capital and household off-farm income to contribute to family living expenses and to augment farm income shortfalls.

Farms with sales of \$250,000 or more appear to be viable self-sustaining economic units. They own assets averaging more than \$1 million, have manageable debt levels, generate sufficient farm income to cover operating expenses and economic costs, and record economic profit levels that allow them to generate reasonable rates of return on assets and equity. While over 26 percent of very large farms report debt/asset ratios exceeding 40 percent, this class generates average operating profit margins of 19 percent. While farm households in these classes receive average off-farm income of \$35,000, the majority of their income is from farm sources.

Lenders Serve Various Farm Typology Groups

The recent rise in farm debt has not been evenly spread across all farm operations. While many farmers operate with seasonal production loans that are taken out and repaid within the same calendar year, fewer than 45 percent of all 1997 ARMS farm operator respondents reported any debt outstanding as of December 31, 1997 (table 8). Outstanding loan balances for the surveyed operation's four largest loans were reported, with the credit source identified from a list of

Table 7--Selected financial performance measures, all farms, by farm typology classification

Item	Small family farms						Large farms	Very large farms	Non-family farms
	All farms	Limited resource	Retirement	Residential/ Lifestyle	Primary occupation		\$250,000- 499,999	Over 500,000	
					Low-sales Less than \$100,000	High-sales \$100,000- 249,999			
Number of farms (expanded)	2,049,384	195,572	304,293	811,752	396,698	178,210	79,240	45,804	37,816
Percent of farms	100.0	9.5	14.8	39.6	19.4	8.7	3.9	2.2	1.8
Total household income (\$)	52,347	8,604	40,483	65,736	34,054	50,526	78,592	200,758	N.A.
Off-farm income (\$)	46,358	11,833	39,358	69,426	32,917	28,916	34,460	36,289	N.A.
Family living expenses (\$)	22,058	11,402	17,635	27,906	18,162	22,385	24,102	32,177	N.A.
Overall financial performance									
Favorable (%)	64.5	64.3	77.9	59.6	64.2	66.6	67.8	60.0	55.3
Marginal income (%)	26.9	26.7	21.1	33.3	27.7	16.2	12.4	13.6	27.4
Marginal solvency (%)	4.0	1.8	0.9	1.9	4.7	11.0	14.8	21.2	3.8
Vulnerable (%)	4.6	7.2	0.2	5.3	3.3	6.3	5.0	5.2	13.5
Number of farms									
Favorable (%)	1,322,058	125,811	236,923	483,723	254,720	118,741	53,741	27,482	20,916
Marginal income (%)	551,489	52,159	64,206	269,908	109,965	28,817	9,818	6,239	10,365
Marginal solvency (%)	82,385	3,462	2,617	15,099	18,803	19,514	11,720	9,692	1,433
Vulnerable (%)	93,452	14,140	548	43,023	13,210	11,138	3,962	2,391	5,098
Distribution of farms									
Favorable	100.0	9.5	17.9	36.6	19.3	9.0	4.1	2.1	1.6
Marginal income	100.0	9.5	11.6	48.9	19.9	5.2	1.8	1.1	1.9
Marginal solvency	100.0	4.2	3.2	18.3	22.8	23.7	14.2	11.8	1.7
Vulnerable	100.0	15.1	0.6	46.0	14.1	11.9	4.2	2.6	5.5
Financial performance measures									
Liquidity:									
Current ratio	2.8	2.2	11.0	2.8	3.6	3.0	2.2	2.1	2.8
Working capital (\$)	32,201	2,952	23,589	10,104	33,639	72,844	102,356	227,389	137,027
Solvency:									
Debt/asset ratio	12.3	11.2	1.9	9.6	10.2	16.3	20.2	21.8	13.1
Total assets (\$)	446,304	84,517	394,135	270,004	452,238	705,333	1,027,230	2,273,087	1,808,670
Total liabilities (\$)	54,697	9,465	7,592	25,969	46,259	114,628	206,957	495,564	237,386
Net Worth (\$)	391,607	75,053	386,542	244,035	405,979	590,705	820,273	1,777,523	1,571,284
Profitability:									
Rate of return on assets (%)	0.8	-11.2	-0.7	-1.7	-2.9	0.6	5.0	9.6	6.1
Rate of return on equity (%)	-0.4	-13.5	-0.9	-2.8	-4.2	-1.1	3.9	9.6	5.4
Operating profit margin (%)	3.9	-83.3	-11.9	-21.1	-25.2	2.2	14.1	19.2	15.3
Net farm income (\$)	17,407	1,275	6,477	2,723	8,589	34,040	78,824	248,387	109,659
Repayment capacity:									
Term debt coverage ratio	3.4	2.2	7.9	1.7	2.5	3.5	4.3	4.9	4.3
Financial efficiency:									
Asset turnover ratio	0.2	0.1	0.1	0.1	0.1	0.3	0.4	0.5	0.4
Operating expense ratio (%)	82.0	136.9	85.3	110.3	90.1	77.2	76.8	76.0	81.9
Economic cost/Output ratio (%)	101.6	188.8	114.2	131.6	132.4	103.9	91.0	85.0	88.3

Table 8--Reported farm debt , by lender, all farms, by farm typology classification

Item	Small family farms						Large farms	Very large farms	Non-family farms
	All farms	Limited resource	Retirement	Residential/ Lifestyle	Primary occupation		\$250,000- 499,999	Over 500,000	
					Low-sales Less than \$100,000	High-sales \$100,000- 249,999			
Number of farms (expanded)	2,049,384	195,572	304,293	811,752	396,698	178,210	79,240	45,804	37,816
Number of farms with debt	911,361	39,024	53,958	354,316	222,400	128,926	63,115	36,460	13,161
Percent of farms with debt	44.5	20.0	17.7	43.7	56.1	72.3	79.7	79.6	34.8
Average debt (\$ per farm)									
Farm Credit System	11,204	332	1,122	4,308	8,678	25,278	50,292	125,483	36,406
Commercial banks	24,817	3,887	3,918	15,220	21,343	49,544	92,488	214,969	55,050
Life insurance companies	1,460	14	101	255	280	1,415	5,260	23,236	23,958
Farm Service Agency	3,121	1,101	599	1,116	4,696	10,715	8,952	12,016	1,608
Individuals and others	11,171	3,665	1,771	8,149	9,739	17,729	32,070	65,222	65,373
Unspecified lender	789	0	1	34	264	1,606	4,327	14,065	5,606
All lenders	52,562	9,000	7,513	29,082	45,000	106,287	193,390	454,990	188,001
Debt distributions (Percent)									
Farm Credit System	21.3	3.7	14.9	14.8	19.3	23.8	26.0	27.6	19.4
Commercial banks	47.2	43.2	52.2	52.3	47.5	46.6	47.8	47.3	29.3
Life insurance companies	2.8	0.2	1.3	0.9	0.6	1.3	2.7	5.1	12.8
Farm Service Agency	5.9	12.2	8.0	3.8	10.5	10.1	4.6	2.6	0.9
Individuals and others	21.3	40.7	23.6	28.0	21.7	16.7	16.6	14.3	34.8
Unspecified lender	1.5	0.0	0.0	0.1	0.6	1.5	2.2	3.1	3.0
All lenders	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Farm Credit System	100.0	0.3	1.5	15.2	15.0	19.6	17.4	25.0	6.0
Commercial banks	100.0	1.5	2.3	24.3	16.7	17.4	14.4	19.4	4.1
Life insurance companies	100.0	0.1	1.0	6.9	3.7	8.4	13.9	35.6	30.3
Farm Service Agency	100.0	3.4	2.9	14.2	29.1	29.9	11.1	8.6	1.0
Individuals and others	100.0	3.1	2.4	28.9	16.9	13.8	11.1	13.1	10.8
Unspecified lender	100.0	0.0	0.0	1.7	6.5	17.7	21.2	39.8	13.1
All lenders	100.0	1.6	2.1	21.9	16.6	17.6	14.2	19.4	6.6

16 potential lenders. The lender classes presented here correspond with those reported in the sector balance sheet.

Yearend loan balances were reported by fewer than 20 percent of limited resource and retirement farms, but almost 80 percent of the large and very large farms reported debt outstanding on December 31, 1997. This suggests that operations incurring debt are the larger, more efficient units, which are best positioned to benefit from the strategic use of credit.

Limited resource farms averaged only \$9,000 in outstanding debt, and reported owing proportionally more to the Farm Service Agency and the category of Individuals and others. Banks provided over half the debt reported by retirement and residential/lifestyle farms, while the Farm Credit System furnished proportionally more of the debt owed by the three classes of farms with sales over \$100,000.

More than 48 percent of reported Farm Credit System debt was owed by large, very large, and nonfamily operations. The Farm Service Agency appears to be serving smaller operations, with over 62 percent of its loans going to limited resource and small farms reporting the operator's primary

occupation as farming. These limited resource and small farms also accounted for about 34 percent of debt owed to both the Farm Credit System and banks.

Farm Typology Groups Use Differing Levels of Debt Repayment Capacity

Debt repayment capacity utilization (DRCU) for the farm sector, as presented previously, is expected to rise from 53 percent in 1997 to 61 percent in 1998. That measure is defined as the ratio of actual farm debt to the maximum feasible debt that could be supported by the current farm income of the sector. As described there, DRCU provides an historical overview of farmers' relative use of credit capacity from 1970 through the end of 1998.

Data collected in the 1997 ARMS provide a more detailed analysis of DRCU, allowing the influence of off-farm income, family withdrawals (living expenses), and payment of estimated income taxes to be included in the calculation of income available for debt coverage. The maximum principal and interest payment that a farmer could make based on that income, and the maximum loan that the payment could service, can be estimated more precisely for farmers

Table 9--Debt repayment capacity utilization based on total household income, all farms, by farm typology classification

Item	Small family farms						Large farms	Very large farms
	All farms	Limited resource	Retirement	Residential/ Lifestyle	Primary occupation		\$250,000- 499,999	Over 500,000
					Low-sales Less than \$100,000	High-sales \$100,000- 249,999		
Number of farms (expanded)	2,049,384	195,572	304,293	811,752	396,698	178,210	79,240	45,804
Number of farms with debt	911,361	39,024	53,958	354,316	222,400	128,926	63,115	36,460
Percent of farms with debt	44.5	20.0	17.7	43.7	56.1	72.3	79.7	79.6
Dollars per farm								
Total household income (\$)	52,347	8,604	40,483	65,736	34,054	50,526	78,592	200,758
Off-farm income (\$)	46,358	11,833	39,358	69,426	32,917	28,916	34,460	36,289
Gross cash farm income	80,939	6,723	16,960	15,005	42,013	159,781	325,449	1,080,789
Net farm income	17,407	1,275	6,477	2,723	8,589	34,040	78,824	248,387
Income for debt coverage	36,834	494	21,434	33,844	23,467	51,011	108,675	283,595
Principal/interest payments	7,690	1,067	1,008	3,708	6,475	16,468	29,247	67,899
Debt coverage margin	29647	-573	20426	30136	16992	34543	79428	215696
Maximum loan payment	30,927	2,402	18,344	27,509	20,631	44,753	93,082	250,292
Total liabilities	54,697	9,465	7,592	25,969	46,259	114,628	206,957	495,564
Max feasible debt	170,185	15,820	102,481	147,250	116,320	241,698	496,748	1,319,316
Debt repayment capacity utilization (%)	32.1	59.8	7.4	17.6	39.8	47.4	41.7	37.6
Number with DRCU > 1.2	321,392	31,301	15,394	105,916	84,720	46,311	15,656	11,169
Percent of farms	15.7	16.0	5.1	13.1	21.4	26.0	19.8	24.4
Percent of farms with debt	35.3	80.2	28.5	29.9	38.1	35.9	24.8	30.6
Percent of debt	48.0	83.1	51.0	36.6	53.1	47.5	36.5	42.5
If Gross Cash Farm Income Declines 20 Percent								
Dollars per farm								
Gross cash income	64,751	5,378	13,568	12,004	33,610	127,825	260,359	864,631
Net farm income	4,457	199	3,763	323	1,867	8,475	26,752	75,460
Income for debt coverage	25,770	-581	18,721	31,443	16,745	25,446	56,603	110,669
Principal/interest payments	7,690	1,067	1,008	3,708	6,475	16,468	29,247	67,899
Debt coverage margin	18,584	-1,649	17,713	27,735	10,270	8,978	27,356	42,770
Maximum loan payment	23,748	2,007	16,536	25,791	16,379	27,777	57,096	138,323
Total reported debt	54,697	9,465	7,592	25,969	46,259	114,628	206,957	495,564
Maximum feasible debt	136,541	14,717	95,502	139,260	99,486	161,182	317,950	775,040
Debt repayment capacity utilization (%)	40.1	64.3	8.0	18.7	46.5	71.1	65.1	63.9
Number with DRCU > 1.2	414,739	34,788	17,109	129,081	93,349	80,099	29,462	19,924
Percent of farms	20.2	17.8	5.6	15.9	23.5	45.0	37.2	43.5
Percent of farms with debt	45.5	89.1	31.7	36.4	42.0	62.1	46.7	54.7
Percent of debt	64.2	92.6	59.2	45.8	60.8	72.1	62.4	65.5

Totals include non-family farms.

Source: USDA, 1997 Agricultural Resource Management Study.

within each farm typology classification. Comparison of actual total liabilities with maximum debt supportable by income from all sources gives a more comprehensive measure of each respondent's individual DRCU. This analysis does not include any nonfarm debt owed by the farm operator's household.

Including the contribution of off-farm income to farm debt service, DRCU averaged 32 percent for all farms in 1997. Retirement farms owed less than 8 percent of the debt that they could service with current income from all sources,

while DRCU for limited resource operations averaged almost 60 percent. DRCU for farms reporting the operator's primary occupation as farming averaged less than 50 percent, and that of very large farms averaged 38 percent.

Farms can often meet short term income shortfalls with savings and liquidation of assets. However, if DRCU exceeds 1.2 (meaning the operation owes 20 more debt than can be serviced with current income) this debt may be at risk of default. About 35 percent of the operations reporting debt outstanding at the end of 1997 had DRCU greater than 1.2,

but these farms owed 48 percent of all debt. Over 80 percent of limited resource farms were in this high debt group, and these farms reported 83 percent of all debt owed by this typology class. Small farms with farming as the operator's primary occupation generally were slightly more likely to be in the high DRCU class, while large and very large farms were slightly less likely to be in this group.

Impact of Reduction in Farm Income Differs by Typology

The impact of hypothetical reductions in gross farm income on farmers' ability to service debt can be simulated using ARMS data. As expected, those households reliant on farm income, and with the lowest off-farm earnings, would be most affected by a fall in agricultural incomes. Smaller farms that rely extensively on farm earnings, and that lack access to off-farm employment opportunities, would be most adversely affected by declining farm income.

Given a hypothetical gross farm income decline of 20 percent, average DRCU rises from 32 percent to over 40 percent. The percentage of indebted farms with DRCU greater than 1.2 rises from 35 percent to 45 percent, and share of debt held by these high debt operations rises from 48 percent to 64 percent.

Farms would not be equally affected by a decline in income. For residential/lifestyle farms, which generate substantial off-farm income, the change in DRCU is negligible, rising about 1 percentage point. Farms in the larger size classes would experience an increase in DRCU from about 40 percent to about 65 percent. The impact of a 20-percent gross farm income decline on smaller farms reporting the operator's primary occupation as farming would differ considerably between high- and low-sales classes. Operations in the high sales group would see a DRCU increase from 47 percent to 71 percent, while DRCU for those in the low sales class, benefiting from slightly higher off-farm income, would rise from 40 percent to 47 percent.

Farm Assets, Debt, and Equity Are Expected To Continue Upward Through 1998

With the value of farm real estate rising 5-6 percent and debt increasing slightly less, equity in the sector is expected to improve.

Farm business sector assets, debt and equity values continue to rise despite an environment of lower commodity prices, declining returns, lower real interest rates, and increasing market risk and uncertainty. Farm sector asset, debt and equity values reflect farm investors' and lenders' collective decisions and expectations about the relative profitability of farm and non-farm sector investments.

Although 1997 U.S. farm business asset estimates have not yet been finalized, they are expected to exceed \$1 trillion and are forecast at \$1.1 trillion for 1998. The value of farm real estate, the largest share of the sector's assets, increased 5.9 percent during 1997 and is expected to grow 5 percent in 1998. Farm business debt grew more than 6 percent in 1997 and now is expected to grow nearly 4 percent in 1998. This implies a rising net worth (equity) for the farm sector in 1997 and 1998 (figure 24). Farm asset values have grown nearly 4 percent per year during the 1990s.

Farm business debt is projected to have reached \$165 billion by the end of 1997, and to reach over \$172 billion in 1998. Despite the increase in debt, farm business balance sheets have shown steady improvement throughout the 1990s, especially since 1992. Debt-to-asset ratios have improved, as the increase in farm business debt has been more than

offset by the rise in the value of farm business assets. The value of farm real estate has risen a third from 1992 through the end of 1997, while farm mortgage balances have increased less than 12 percent. As a result, the degree of U.S. farmland leverage has declined, providing most producers with an added equity cushion to lessen the impact of any short-term declines in income or asset values.

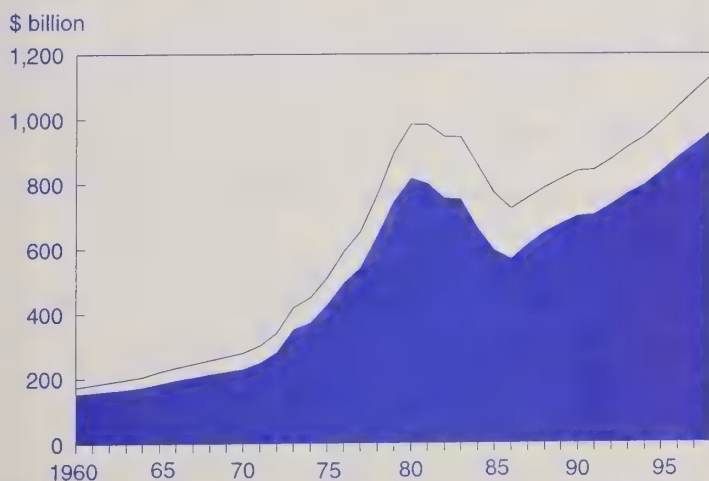
Farm Real Estate Values Rise More Slowly As Commodity Prices Decline

Continued relatively strong farm income and returns to farm assets in 1997, as well as lower real interest rates, provide a foundation for rising farm real estate values in 1998. However, generally declining farm commodity prices are lowering estimates of income and returns. Several factors are key in understanding the short- and longer term outlook for farmland values: 1) the Federal Agriculture Improvement and Reform Act of 1996 (1996 Act), which fundamentally redesigns income support programs by "decoupling" program payments from program participation, 2) deregulated and expanded markets for farm credit, and 3) increased globalization of the world economy. These factors have increased the variability of returns to farm investments, but have also created new opportunities for new capital investment in the sector.

U.S. agriculture, like the economy in general, has become more high-tech and increasingly export-driven. Financial markets have become more efficient and global. Connected through computer and other information technology, farm investors now have ready access to financial and commodity price data worldwide. The "decoupling" of farm commodity prices under the 1996 Act and the lowering of tariff and non-tariff barriers have helped U.S. agricultural products become more competitively priced in world markets. However, these developments have also exposed the farm sector to greater fluctuations in export demand, increasing price risk.

Long-term expectations for an increasing level of farm income, stable interest rates and sufficient access to credit markets, along with the outlook for agricultural exports, are key factors supporting the demand for farmland, machinery and equipment, and other farm assets. Nonetheless, the

Figure 24
Farm assets, debt, and equity
Equity increasing since 1986



Source: Economic Research Service, USDA.

recent world declines in commodity markets (including agricultural commodities) are lowering estimates of returns to the U.S. farm sector in 1998.

Continued demand for agricultural land along the fringes of urban areas and demand for rural land for recreational purposes are also contributing to the growth in real estate values, especially in the Northeast and in some Western States. Nonreal estate values are expected to increase about \$3.8 billion (1.7 percent) in 1998. The value of machinery and equipment, crops stored, purchased inputs, and financial assets are all expected to rise slightly. However, livestock and poultry inventories are expected to decline slightly.

Farm Sector Equity Continues Upward

Farm business equity is expected to continue rising in 1998 as farm asset values rise more rapidly than farm debt. In current dollars, sector net worth should total about \$957.2 billion. Farm sector equity by the end of 1998 is expected to be almost \$80 billion more than in 1996, and over \$300 billion greater than the trough in 1985.

The long-term farm equity comparison is a little different if the numbers are adjusted for inflation. Real farm equity in 1998 is forecast to be \$849.6 billion. In 1986, farm equity had an inflation-adjusted value of \$705 billion, compared with an estimated peak of almost \$1.4 trillion in 1980. Consequently, farm sector wealth in 1998 is still \$503 billion below the inflation-adjusted value of farm equity in 1980.

Debt-to-Asset Ratio Stable

Indicators measuring the solvency of the farm sector as a whole remain reasonably favorable for 1997 and 1998. The debt-to-asset ratio indicates the relative dependence of farm businesses on debt and their ability to use additional credit without impairing risk-bearing ability. The lower the debt-to-asset ratio, the greater the overall financial solvency of the farm sector. The debt-to-asset ratio is forecast to be 15.3 percent in 1997 and in 1998. The share of debt to total asset value has been declining steadily in the 1990s, from 16.5 percent in 1991. This indicator of solvency has changed markedly from 1985, when the debt-to-asset ratio stood at 23 percent. The debt-to-equity ratio is forecast to be 18.0 percent in 1998, compared with 18.1 percent in 1997, and up from 17.8 in 1996.

Profitability of Farm Sector Investments Reduced

Rates of return on farm assets and equity, indicators of the profitability of farm sector investments, likely fell in calendar 1997. The rate of return on farm assets from current income was 3.1 percent in 1998 compared with 4.0 percent in 1997. The rate of return on farm equity from current income was 2.3 percent in 1998 compared with 3.0 percent in 1997. Both returns on assets and returns on equity from

current income in 1998 will remain above the average returns earned during 1993-95.

Total returns on farm business assets (including capital gains) are estimated at 6.2 percent in 1997 (with 4.0-percent growth in current income and 2.2-percent growth in capital gains). Total returns on farm business assets are forecast at 5.8 percent in 1998 (with 3.1 percent growth in current income and 2.6 percent growth in real capital gains).

The "net real return on farm assets" measure of profitability includes the real capital gains component of total returns. The net real return on farm assets is the total real return on

Measures of Farm Sector Profitability

Real capital gains (losses) mean "adjusting the nominal capital gains for inflation in that year." Yearly inflation changes the purchasing power of funds tied up in assets (or debt). The real net returns on farm assets and equity are estimated as follows:

For farm assets:

ROACI (rate of return on assets from current income)

+ ROARKG (rate of return on assets from real capital gains)

= ROATOT (total real rate of return on farm assets)

- RELCSTDT (real cost of farm debt, which is the average interest rate on farm debt minus the real rate of return on farm debt)

= RNROA (real net return on assets)

or expressed slightly differently

$$\text{RNROA} = (\text{current income} + \text{real capital gains on assets}) / \text{total farm assets} - (\text{interest} + \text{real capital gains on debt}) / \text{total farm debt}$$

For farm equity:

ROECI (rate of return on farm equity from current income)

+ ROERKG (rate of return on farm equity from real capital gains)

= ROETOT (total real return on equity)

Net cash flow (after interest expenses) is defined as:

Net cash income

+ change in farm business debt

+ net change in other financial assets

+ net rent to nonoperator landlords (excluding capital consumption)

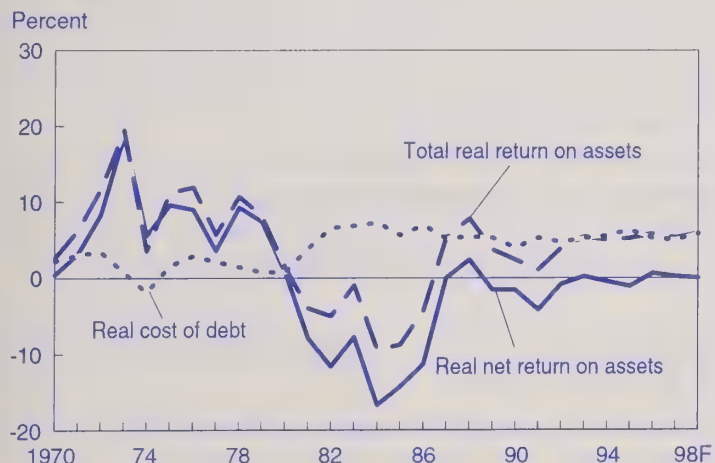
- capital expenditures (excluding operator dwellings)

- interest expenses (excluding operator dwellings)

assets minus the real cost of debt. As the total real return on assets has been rising faster than the real cost of debt, the net real return on assets has been rising from negative values since 1984.

The net real return on farm assets (RNROA) turned positive in 1996 (1.5 percent) and is forecast to be 1.2 percent in 1997 and 0.0 percent in 1998. This indicates that for the

Figure 25
Rates of return on assets and real cost of farm debt



Source: Economic Research Service, USDA.

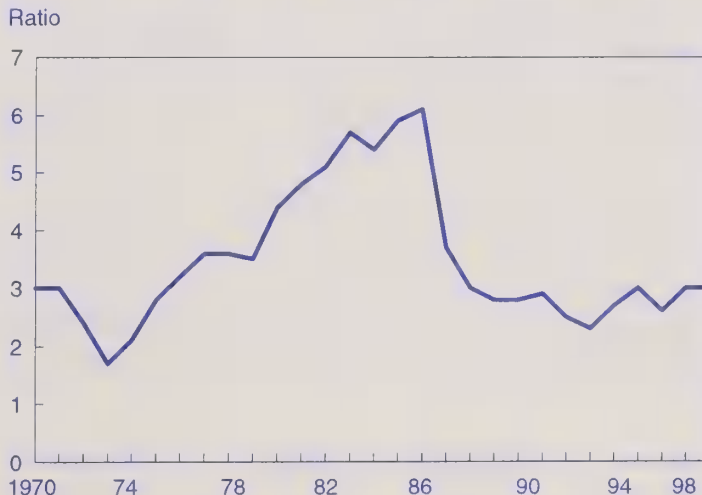
farm business sector as a whole, debt financing is still profitable. Correspondingly, farm business capital expenditures are forecast to remain in the \$17- to \$18-billion range, up from the \$13- to \$14-billion range in 1994-95.

Other Key Financial Ratios Continue To Improve

Net cash flow provides an indication of the total resources available to farm businesses for investment in the farm sector, and to meet current debt obligations. Net cash flow expands upon net cash income by accounting for both internal and external sources of funds. The ratio of debt to net cash flow rose from 2.6 in 1996 to 3.0 in 1997. Debt to net cash flow is forecast to remain at 3.0 in 1998. During the 1990s, debt to net cash flow has fluctuated within a narrow range of 2.3 to 3.0. From 1980 to 1985 the ratio ranged from 4.4 to 5.9.

The debt-to-returns to farm assets ratio rose to 9.1 in 1995 as farm debt increased and returns to operators fell. However, the ratio fell to 5.0 in 1997 and is forecast to decline to 4.9 in 1998. This means there is \$4.90 of farm debt per \$1 of returns in 1998, compared with \$5.00 in 1997. Conversely, there are fewer dollars of returns to meet farm debt obligations in 1998 than in 1997.

Figure 26
Debt-to-net cash flow reasonably stable in 1990s



Source: Economic Research Service, USDA.

Farm Sector Net Value-Added and Net Farm Income Decline from Highs of 1996

USDA just released its 1997 estimates of national and State-level farm income. While farm income dropped from 1996, it was still the second highest in history.

Net value-added and net farm income both declined by \$3.5 billion in 1997, but each measure was surpassed only by the record values attained in 1996. Both measures had risen substantially from 1995 to 1996. Consequently, even though net value-added fell 3.7 percent in 1997, it was still \$17.9 billion greater than in 1995. Because net value-added represents the total value of the farm sector's output of goods and services, less payments to other (non-farm) sectors of the economy, it reflects production agriculture's addition to national output. It also represents the sum of the economic returns to all the providers of factors of agricultural production: farm employees, lenders, landlords, and farm operators.

The value of the sector's production (final output) increased \$2.3 billion in 1997. This increase, however, was exceeded by the \$5.7-billion expansion in out-of-pocket costs (intermediate consumption outlays). The result was \$3.5 billion less in net value-added to be distributed among the providers of resources to the farm sector in 1997. Hired workers and lenders received 3.9 percent and 3.5 percent more for their contributions to farm production in 1997 than in 1996. By contrast, the earnings of non-operator landlords were down 7.4 percent. The decline in earnings to landlords reflected lower returns to holders of share-rent contracts, which, in turn, can be traced directly to the \$3.1-billion decline in value of crop production. Most share-rent arrangements involve crops, and while the harvest of many major crops remained near or even exceeded the record levels of 1996, prices received for commodities were significantly lower than in 1996.

Net farm income is that portion of net value-added earned by farm operators (defined as those individuals and entities who share in the risks of production). Typically it is the farm operators who benefit most from the increases and absorb most of the declines arising from short term, unanticipated weather and market conditions. In fact, an amount equal to the total 1997 drop in net value-added was absorbed by farm operators, as increases in factor payments to hired labor and lenders offset the lower payments to landlords. Declining prices accounted for much of the drop in net value-added in 1997 and are reflected in net farm income.

Net cash income rose \$4.3 billion, a 7.7-percent increase from 1996 to 1997. Net cash income is the cash earnings

realized within the year from the sales of production and the conversion of assets, both inventories (in years in which reduced) and capital consumption, into cash. Net cash income, a solvency measure, represents the funds that are available to farm operators to meet family living expenses and make debt payments which, in the case of a family owned business, are not independent decisions. Net cash income, unlike net farm income, does not include the value of home consumption, changes in inventories, capital replacement, and implicit rent and expenses related to the farm operator's dwelling—none of which reflect cash transactions during the current year. Consequently, net cash income is more appropriate as an indicator of solvency than a measure of the value of the sector's output.

The value of sector output is viewed more accurately using either net value-added (for the sector) or net farm income (for operators). Net cash income exhibits less volatility than net farm income, as producers try to manage their cash flow to meet multiple objectives: payment of debt and family expenses, smoothing of year-to-year income fluctuations in order to minimize income tax liabilities, and maximizing income by postponing sales in anticipation of higher prices or accelerating sales in anticipation of lower prices. However, net cash income cannot be maintained indefinitely without being replenished through production, which would be reflected in net value-added and net farm income.

Value of Agricultural Sector Output Up 1 Percent in 1997

Final agricultural sector output (the value of the agricultural sector's output of commodities and services before expenses) rose a mere \$2.3 billion from 1996 to 1997, but the level in 1996 had exceeded the previous record (1994) by a whopping \$20 billion. Increases of \$5 billion in the value of cattle production and \$3.5 billion in the value of soybean production in 1997 more than offset the declines in value of other commodities where lower prices decreased earnings. Yet, the higher value of output only partially offset the \$5.7-billion increase in intermediate consumption outlays. The outcome was a \$3.5-billion fall in net value-added.

The total value of final 1997 crop output was down \$3.1 billion, reflecting significant price declines for many major

Table 10--Value added to the U.S. economy by the agricultural sector via the production of goods and services, 1993-1997 1/

United States						Year-to-year change	
Item	1993	1994	1995	1996	1997	Amount	Percent
	1,000 dollars					Mil \$	
Final crop output	82,383,093	100,314,031	95,804,528	115,590,948	112,497,986	-3,093	-2.7
Food grains	8,179,932	9,545,012	10,416,611	10,740,825	10,602,578	-138	-1.3
Feed crops	20,211,046	20,351,200	24,581,093	27,264,637	27,638,348	374	1.4
Cotton	5,249,680	6,737,709	6,851,079	6,983,186	6,515,092	-468	-6.7
Oil crops	13,219,881	14,656,680	15,496,020	16,361,631	19,911,032	3,549	21.7
Tobacco	2,947,785	2,656,352	2,548,399	2,795,990	2,885,613	90	3.2
Fruits and tree nuts	10,284,137	10,334,702	11,119,228	11,932,582	12,790,249	858	7.2
Vegetables	13,536,876	13,893,227	14,912,881	14,560,777	15,085,968	525	3.6
All other crops	13,952,700	14,897,157	15,164,922	15,935,395	16,667,711	732	4.6
Home consumption	68,578	71,815	104,286	91,503	78,037	-13	-14.7
Value of inventory adjustment 2/	-5,267,522	7,170,177	-5,389,991	8,924,422	323,358	na	na
Final animal output	91,700,532	89,690,641	87,631,707	92,190,340	96,199,511	4,009	4.3
Meat animals	50,823,492	46,784,612	44,827,534	44,414,411	49,925,189	5,511	12.4
Dairy products	19,242,553	19,935,161	19,893,610	22,820,300	20,989,271	-1,831	-8.0
Poultry and eggs	17,325,621	18,445,009	19,070,252	22,345,205	22,182,912	-162	-0.7
Miscellaneous livestock	2,788,360	3,004,191	3,226,827	3,424,900	3,470,575	46	1.3
Home consumption	450,631	409,205	365,100	333,022	380,273	47	14.2
Value of inventory adjustment 2/	1,069,875	1,112,463	248,384	-1,147,498	-748,709	na	na
Services and forestry	16,587,406	17,886,160	19,387,922	20,670,500	22,073,718	1,403	6.8
Machine hire and customwork	1,864,790	2,070,810	1,927,653	2,153,757	2,601,080	447	20.8
Forest products sold	2,555,263	2,742,869	2,946,760	2,824,262	2,840,026	16	0.6
Other farm income	4,608,891	4,392,376	5,213,331	5,893,759	6,349,957	456	7.7
Gross imputed rental value of farm dwellings	7,558,462	8,680,105	9,300,178	9,798,722	10,282,655	484	4.9
Final agricultural sector output	190,671,031	207,890,832	202,824,157	228,451,788	230,771,215	2,319	1.0
less: Intermediate consumption outlays	100,559,423	104,903,446	109,001,541	112,851,554	118,551,777	5,700	5.1
Farm origin	41,194,579	41,277,660	41,626,308	42,674,822	45,695,404	3,021	7.1
Feed purchased	21,431,234	22,631,209	23,829,253	25,234,162	25,231,646	-3	0.0
Livestock and poultry purchased	14,600,461	13,273,364	12,335,346	11,228,666	13,752,959	2,524	22.5
Seed purchased	5,162,884	5,373,087	5,461,709	6,211,994	6,710,799	499	8.0
Manufactured inputs	23,146,903	24,398,468	26,154,805	28,640,417	28,964,474	324	1.1
Fertilizers and lime	8,397,509	9,179,680	10,032,833	10,933,968	10,933,386	-1	0.0
Pesticides	6,723,326	7,225,032	7,726,463	8,526,302	8,827,254	301	3.5
Petroleum fuel and oils	5,349,809	5,312,044	5,427,438	6,018,709	6,223,166	204	3.4
Electricity	2,676,259	2,681,712	2,968,071	3,161,438	2,980,668	-181	-5.7
Other intermediate expenses	36,217,941	39,227,318	41,220,428	41,536,315	43,891,899	2,356	5.7
Repair and maintenance of capital items	9,193,203	9,082,976	9,470,473	10,254,371	10,393,593	139	1.4
Machine hire and customwork	4,420,056	4,789,845	4,791,725	4,719,283	4,832,633	113	2.4
Marketing, storage, and transportation expenses	5,648,385	6,820,594	7,182,145	6,926,110	7,105,542	179	2.6
Contract labor	1,770,956	1,805,440	1,969,054	2,128,835	2,595,771	467	21.9
Miscellaneous expenses	15,185,341	16,728,463	17,807,031	17,507,716	18,964,360	1,457	8.3
plus: Net government transactions	6,862,948	989,161	106,460	98,371	56,061	-42	-43.0
+ Direct Government payments	13,402,015	7,879,129	7,279,450	7,339,570	7,495,953	156	2.1
- Motor vehicle registration and licensing fees	362,030	414,967	461,750	422,539	461,224	39	9.2
- Property taxes	6,177,037	6,475,001	6,711,240	6,818,660	6,978,668	160	2.3
Gross value added	96,974,556	103,976,547	93,929,076	115,698,605	112,275,499	-3,423	-3.0
less: Capital consumption	18,353,291	18,694,942	19,098,757	19,419,080	19,520,218	101	0.5
Net value added	78,621,265	85,281,605	74,830,319	96,279,525	92,755,281	-3,524	-3.7
less: Factor payments	35,054,239	37,015,187	38,846,636	42,927,515	42,931,275	4	0.0
Employee compensation (total hired labor)	13,233,026	13,505,696	14,320,795	15,406,220	16,010,508	604	3.9
Net rent received by nonoperator landlords	10,999,713	11,774,274	11,799,476	14,300,570	13,243,258	-1,057	-7.4
Real estate and nonreal estate interest	10,821,500	11,735,217	12,726,365	13,220,725	13,677,508	457	3.5
Net farm income	43,567,026	48,266,417	35,983,683	53,352,010	49,824,006	-3,528	-6.6

1/ Final sector output is the gross value of the commodities and services produced within a year. Net value-added is the sector's contribution to the National economy and is the sum of the income from production earned by all factors-of-production. Net farm income is the farm operator's share of income from the sector's production activities. The concept presented is consistent with the employed by the Organization for Economic Cooperation and Development.

2/ A positive value of inventory change represents current-year production not sold by December 1. A negative value is an offset to production from prior years included in current-year sales.

crops. In 1996, crop prices were high in the first half of the year, but began to decline in the second half. In general, lower prices continued on through 1997. Soybeans were an exception, as prices ascended to unusually rarified levels of \$8 or more per bushel during the first half of 1997.

Although soybean prices began tailing off in the second half of 1997, they still finished the year in a range favorable to producers. With large crop harvests in 2 consecutive years, farmers sold approximately what they harvested in 1997, incrementing inventories by a modest \$323 million.

Inclusion of the inventory change enables a full accounting of a current year's production in the tabulation of the calendar year's farm sector output.

The total value of livestock production in 1997 was \$4 billion higher than the previous year, the second consecutive year with a significant increase. The value of cattle produced jumped \$5 billion and hog producers added another \$498 million to the value of meat animal receipts. Beef cattle prices were steady throughout the year, after staging a comeback from the lows reached in the first half of 1996. The \$5-billion rise in cattle receipts resulted from a jump in production in response to improved market prices.

Producers reversed the strategy of herd liquidation they previously had been employing to minimize the consequences of an ongoing cost-price squeeze. Market prices for hogs and broilers declined sharply in the latter half of 1997.

However, the output of hogs continued to increase. The value of dairy products declined \$1.8 billion. Dairy prices, after bottoming out during the first half of 1997, turned up in the summer of 1997, but not enough to bolster sagging receipts. The rapid structural change occurring in livestock production, with regional shifts in production and consolidation into large operations (examples: hogs in North Carolina and dairy in California), has led to higher production and lower prices.

Restructuring will persist until higher-cost production ceases in sufficient quantities to achieve an equilibrium. As an aside, a consequence of this restructuring is that a higher percentage of feed is being purchased as opposed to being grown on the farms producing the livestock.

Production inputs purchased and used within the current production year, called intermediate consumption outlays in the context of value-added accounting, rose \$5.7 billion (5.1 percent) in 1997. Livestock purchases were up, reflecting the upturn in the beef cycle. Expenditures related to crop production were little changed, in line with the acreage planted.

Net government transactions, the net flow of funds between the agricultural and government sectors, were only \$56 million in 1997, continuing a multi-year slow decline. After 10 years of running into billions of dollars, net government transactions fell below \$1 billion in 1994. By 1995, net government transactions dropped to \$106 million, declining fur-

ther to \$98 million in 1996. Recently the agricultural sector has paid government (mostly State and local entities) nearly as much in taxes and fees as it received in (Federal) payments under various farm programs. Net government transactions reached a record high of \$11 billion in 1987, in the midst of the farm sector's financial crisis. The significant decline in this measure is a reflection of both the general decrease in government payments (most of which were developed to support farm operator incomes) since 1987, and the steady growth in licensing fees and property taxes collected from the agricultural sector. (Income taxes are not included in the accounts because they are not incurred in production.) Lower government payments in the 1990s (except for 1993) were due to the relatively high commodity prices and low deficiency payments, partially the result of an expansion in demand, including growth in exports of agricultural commodities.

Farm Marketing Receipts Up in 1997

World economic growth and trade liberalization have provide increased opportunities for U.S. exports. This environment translated into strong export growth for the U.S. crop and livestock sectors from the early 1990s through much of 1997, when demand was diminished by economic problems in Asia. In 1997, the value of marketings of all farm commodities rose \$9.1 billion. Continuing an unbroken trend stretching back to 1994, cash receipts from sales of crops in 1997 exceeded that of the previous year by \$5.5 billion. Cash receipts from crops have risen nearly 40 percent since 1990. In contrast, livestock receipts, which rose \$3.6 billion in 1997, have been up and down in the 1990s. In 1997, the increases in livestock receipts were powered by a \$5-billion increase in cattle sales, which were partially offset by a \$1.8-billion decline in dairy product sales. Receipts from sales of meat animals were up \$5.5 billion as hogs added another \$500,000.

Production and sales of livestock and products were up substantially across the board in 1997. Much of the production gains occurred in the second half of the year as grain prices declined, reducing the cost of feed components.

Beef production rose in 1997, particularly in the third and fourth quarters, due in large part to an increase in marketings of fed cattle and the slowing in the liquidation of the cattle herd. The movement of feeder cattle into feedlots slowed in the latter part of the year but the inventory of cattle in feedlots remained high at the end of 1997. Steer prices tailed off in the fourth quarter.

The expansion among hog farmers that started in the spring of 1997 continued at a rapid pace through the rest of the year and was especially apparent in the fall pig crop. The big increase in the fall pig crop substantially boosted sales and was also reflected in the end-of-year inventory of hogs

Table 11--Farm income indicators, 1993--97

	1993	1994	1995	1996	1997
	1,000 dollars				
Gross farm income	204,073,046	215,769,961	210,103,607	235,791,358	238,267,168
Gross cash income	200,193,022	198,326,196	205,475,650	217,791,187	227,951,554
Farm marketings	177,762,063	181,241,012	188,108,456	199,579,839	208,664,538
Crops	87,582,037	93,072,039	101,090,233	106,575,023	112,096,591
Livestock and products	90,180,026	88,168,973	87,018,223	93,004,816	96,567,947
Government payments	13,402,015	7,879,129	7,279,450	7,339,570	7,495,953
Farm-related income	9,028,944	9,206,055	10,087,744	10,871,778	11,791,063
Noncash income	8,077,671	9,161,125	9,769,564	10,223,247	10,740,965
Value of home consumption	519,209	481,020	469,386	424,525	458,310
Rental value of dwellings	7,558,462	8,680,105	9,300,178	9,798,722	10,282,655
Operator and other dwellings 1/	7,124,874	8,241,493	8,731,846	9,167,322	9,716,301
Hired laborer dwellings	433,588	438,612	568,332	631,400	566,354
Value of inventory adjustment	-4,197,647	8,282,640	-5,141,607	7,776,924	-425,351
Total production expenses	160,506,020	167,503,544	174,119,924	182,439,348	188,443,162
Intermediate product expenses	99,150,497	103,512,973	107,494,237	111,145,258	116,417,230
Farm origin	41,194,579	41,277,660	41,626,308	42,674,822	45,695,404
Feed purchased	21,431,234	22,631,209	23,829,253	25,234,162	25,231,646
Livestock and poultry purchased	14,600,461	13,273,364	12,335,346	11,228,666	13,752,959
Seed purchased	5,162,884	5,373,087	5,461,709	6,211,994	6,710,799
Manufactured inputs	23,146,903	24,398,468	26,154,805	28,640,417	28,964,474
Fertilizer and lime	8,397,509	9,179,680	10,032,833	10,933,968	10,933,386
Pesticides	6,723,326	7,225,032	7,726,463	8,526,302	8,827,254
Fuel and oil	5,349,809	5,312,044	5,427,438	6,018,709	6,223,166
Electricity	2,676,259	2,681,712	2,968,071	3,161,438	2,980,668
Other	34,809,015	37,836,845	39,713,124	39,830,019	41,757,352
Repair and maintenance	9,193,203	9,082,976	9,470,473	10,254,371	10,393,593
Other miscellaneous	25,615,812	28,753,869	30,242,651	29,575,648	31,363,759
Interest	10,821,500	11,735,217	12,726,365	13,220,725	13,677,508
Real estate	5,488,616	5,781,610	6,041,533	6,358,975	6,544,100
Nonreal estate	5,332,884	5,953,607	6,684,832	6,861,750	7,133,408
Contract and hired labor expenses	15,003,982	15,311,136	16,289,849	17,535,055	18,606,279
Net rent to nonoperator landlords 2/	10,999,713	11,774,274	11,799,476	14,300,570	13,243,258
Capital consumption	18,353,291	18,694,942	19,098,757	19,419,080	19,520,218
Property taxes	6,177,037	6,475,001	6,711,240	6,818,660	6,978,668
NET FARM INCOME 3/	43,567,026	48,266,417	35,983,683	53,352,010	49,824,006
Gross receipts of farms	196,948,172	207,528,468	201,371,761	226,624,036	228,550,867
Farm production expenses	156,449,585	163,030,363	169,298,205	177,239,919	182,930,291
Nonfactor payments	121,744,095	126,412,512	130,874,561	134,748,055	140,480,324
Intermediate product expenses	98,333,171	102,566,019	106,532,166	109,961,679	115,141,548
Capital consumption	16,130,158	16,322,924	16,496,904	16,687,783	16,626,183
Property taxes	5,509,810	5,718,129	5,876,436	5,969,758	6,116,822
Contract labor	1,770,956	1,805,440	1,969,054	2,128,835	2,595,771
Factor payments	34,705,490	36,617,850	38,423,644	42,491,864	42,449,967
Interest	10,472,751	11,337,880	12,303,373	12,785,074	13,196,200
Hired labor compensation	13,233,026	13,505,696	14,320,795	15,406,220	16,010,508
Net rent to nonoperator landlords	10,999,713	11,774,274	11,799,476	14,300,570	13,243,258
RETURNS TO OPERATORS 4/	40,498,587	44,498,105	32,073,556	49,384,117	45,620,577
Gross cash income	200,193,022	198,326,196	205,475,650	217,791,187	227,951,554
Cash expenses	141,238,384	147,648,436	153,639,765	161,353,634	167,168,439
Cash expenses, excluding net rent	128,886,126	134,494,552	140,433,492	145,620,259	152,494,302
Intermediate product expenses	98,333,171	102,566,019	106,532,166	109,961,679	115,141,548
Interest	10,472,751	11,337,880	12,303,373	12,785,074	13,196,200
Cash labor expenses	14,570,394	14,872,524	15,721,517	16,903,748	18,039,732
Property taxes	5,509,810	5,718,129	5,876,436	5,969,758	6,116,822
Net rent to nonoperator landlords 5/	12,352,258	13,153,883	13,206,272	15,733,375	14,674,137
NET CASH INCOME	58,954,638	50,677,760	51,835,885	56,437,552	60,783,115

1/ Value added to gross income. Value added to net farm income equals difference in net farm income and returns to operators. 2/ Includes landlord capital consumption. 3/ Statistics in and above the net farm income line represent the farm sector, defined as including farm operators' dwellings located on farms. Statistics below the Net Farm Income line represent only the farm businesses to the exclusion of the operators' dwellings.

4/ Returns to operators is equivalent to net farm income excluding the income and expenses associated with farm operators' dwellings.

5/ Excludes landlord capital consumption.

and pigs on farms. Prices of hogs declined substantially in the latter half of 1997 as the growth in pork exports slowed.

Broiler production continued its long-term growth trend, and egg producers expanded their flocks of layers, resulting in a noticeable increase in egg production.

Farmers reaped a large harvest in 1996 and sold an unusually small percentage prior to the end of the year, postponing the sales to 1997. The unsold portion of the 1996 harvest was reflected in 1996 via additions to inventories. In 1997, the boost to cash receipts from sales of beginning-year inventories was offset by the accompanying lowering of inventories within the year. This inter-year postponement of sales shifted cash income from 1996 to 1997.

Typically, an extraordinarily large harvest will generate substantial additions to inventories and then be reflected in a drawdown in inventories the following year when production returns to more normal levels. However, in 1997, production of corn (the leading crop in value of production) exceeded the 1996 crop. As a consequence, farmers sold off the big carryover from 1996 to make way for the equally large quantities of the 1997 harvests retained in yearend inventories for future sale. Consequently, the value of the change in crop inventories changed little in 1997.

In 1996, strong growth in U.S. grain use supported commodity prices, and 1996 was a very favorable year for feed-crop farmers, who planted more acres, benefited from higher yields, and sold their production at high prices. Domestic and export demand were strong, with low carryin stocks. In 1997, export demand declined. Demand dropped in Asia due to regional economic problems, and competition from other exporting countries increased as the value of the dollar rose against the currencies of many other countries. It cost more to buy U.S. exports because the prospective purchaser would first have to acquire dollars to pay for the U.S. agricultural commodities and the price of the dollar had risen relative to many domestic currencies.

In 1997, corn sales changed little from 1996. A continuation of corn sales at near the record set in 1996 was impressive in itself, particularly since 1996 sales had exceeded the previous record by nearly \$2 billion. Production was slightly above the 1996 harvest, and prices received by producers were lower than in 1996 (particularly pre-harvest prices). Sales of soybeans were up an impressive \$3.5 billion in 1997, a 24-percent gain over 1996, which had also been a record year. Soybean production also set new records in both 1996 and 1997. Farmers were able to dispose of soybean inventories carried into 1997 at exceptionally favorable prices in the first of few months of the year. Prices exceeded \$8 at one point in 1997. Prices declined with the second consecutive record harvest but ranged from \$6 to \$7 for the remainder of the year.

Neither wheat nor cotton were much of a story in 1997. Prices remained steady for most of the year but began to weaken near the end as the effects of the economic crisis in Asia began to affect demand for exports. Wheat sales declined 2.6 percent and cotton sales 7.2 percent. Cotton prices did decline noticeably as the harvest progressed, which contributed to the larger drop in sales.

Production and sales of perishable crops for direct human consumption supported farm income in 1997 and cushioned the adverse impacts of the more storable, major field crops on the sector's earnings from production. Sales of vegetables rose 3.5 percent in 1997 and sales of fruits and nuts rose 3.4 percent. Producers of greenhouse and nursery products have consistently achieved sales gains of around 4.5 percent in recent years and extended that trend into 1997 with a 4.8-percent gain.

Total Expenses for Production Inputs and Services Rose 5 Percent in 1997

Total intermediate consumption outlays—production inputs such as feed and fertilizer and services such as repairs and custom work—were estimated at \$118.6 billion in 1997, up \$5.7 billion (5.1 percent) from 1996. The increase was the largest since 1993. The biggest increase was in livestock and poultry purchases, which rose \$2.5 billion. Miscellaneous expenses rose \$1.5 billion. The only significant decrease was in electricity expenses, which were down \$180 million.

Feed expenditures were \$25.2 billion in 1997, nearly unchanged from 1996. For 1993-96, feed expenses have posted the largest increase among individual production expenses. In 1996 and 1997 feed expenses stood \$5.9 billion (30.5 percent) higher than in 1991. A larger proportion of animals are being raised on large, specialized operations that buy most of their feed. In addition, dairy and hog production has expanded in the Southwest and mountain areas where raising feedstuffs other than hay is uneconomical.

The leveling off of feed expenses in 1997 was due to offsetting movements in quantities fed and feed prices. The number of cattle on feed was higher in each quarter of 1997 than in 1996. Hog producers responded to favorable returns due to lowered feed costs and improved pork prices in late 1996 and early 1997 by expanding herds. Although the number of dairy cows fell 1 percent, grains and concentrates fed per cow increased 2.9 percent. Poultry production continued to expand, although at a slower rate.

Livestock and poultry purchases rose \$2.5 billion (22.5 percent) in 1997 to \$13.8 billion. Interstate sales of cattle and calves¹ rose \$2.2 billion (26 percent) to \$10.6 billion in 1997 as average liveweights rose 8 percent and prices rose

¹Interfarm sales of cattle and calves within the same State are counted as neither receipts nor expenses.

Table 12-- United States: Net cash income from farming operations, 1993-97 1/

	1993	1994	1995	1996	1997
	1,000 dollars				
Gross cash income	200,193,022	198,326,196	205,475,650	217,791,187	227,951,554
Farm marketings	177,762,063	181,241,012	188,108,456	199,579,839	208,664,538
Crops	87,582,037	93,072,039	101,090,233	106,575,023	112,096,591
Livestock and products	90,180,026	88,168,973	87,018,223	93,004,816	96,567,947
Government payments	13,402,015	7,879,129	7,279,450	7,339,570	7,495,953
Farm-related income	9,028,944	9,206,055	10,087,744	10,871,778	11,791,063
Cash production expenses	141,238,384	147,648,436	153,639,765	161,353,634	167,168,439
Cash expenses, excluding net rent	128,886,126	134,494,552	140,433,492	145,620,259	152,494,302
Intermediate product expenses	98,333,171	102,566,019	106,532,166	109,961,679	115,141,548
Farm origin	41,194,579	41,277,660	41,626,308	42,674,822	45,695,404
Feed purchased	21,431,234	22,631,209	23,829,253	25,234,162	25,231,646
Livestock and poultry purchased	14,600,461	13,273,364	12,335,346	11,228,666	13,752,959
Seed purchased	5,162,884	5,373,087	5,461,709	6,211,994	6,710,799
Manufactured inputs	23,146,903	24,398,468	26,154,805	28,640,417	28,964,474
Fertilizer and lime	8,397,509	9,179,680	10,032,833	10,933,968	10,933,386
Pesticides	6,723,326	7,225,032	7,726,463	8,526,302	8,827,254
Fuel and oil	5,349,809	5,312,044	5,427,438	6,018,709	6,223,166
Electricity	2,676,259	2,681,712	2,968,071	3,161,438	2,980,668
Other	33,991,689	36,889,891	38,751,053	38,646,440	40,481,670
Interest	10,472,751	11,337,880	12,303,373	12,785,074	13,196,200
Real estate	5,139,867	5,384,273	5,618,541	5,923,324	6,062,792
Nonreal estate	5,332,884	5,953,607	6,684,832	6,861,750	7,133,408
Cash labor expenses	14,570,394	14,872,524	15,721,517	16,903,748	18,039,732
Property taxes	5,509,810	5,718,129	5,876,436	5,969,758	6,116,822
Net rent to nonoperators, exc. capital consumption	12,352,258	13,153,883	13,206,272	15,733,375	14,674,137
NET CASH INCOME	58,954,638	50,677,760	51,835,885	56,437,552	60,783,115

1/ Differs from sector measures by excluding operators' dwellings.

17 percent. Prices were abnormally low in 1996, however, because unusually high slaughter rates raised beef production, dropping retail prices for beef. Prices in 1997 were still 18 percent below their 1993 peak. Prices began rising in 1997 because 1996 slaughter rates diminished the inventory of feeder cattle outside feedlots. In-shipment liveweights were up due to the tremendous increase in heifers being sent to feedlots during the year. For a second year in a row, the value of hog and pig in-shipments increased more than 50 percent. In 1997, hog prices rose 13 percent and in-shipment liveweights increased 41 percent.

Crop production expenses were mixed in 1997 as total acres planted of the major crops was virtually unchanged. Seed expenses were \$6.7 billion, up 8.0 percent from a revised 1996 estimate of \$6.2 billion, due primarily to price increases. Fertilizer, lime, and soil conditioner expenditures were \$10.9 billion in 1997, nearly identical to 1996. Prices paid for nitrogen and mixed fertilizers, of which nitrogen is the largest component, fell. However, prices for phosphorus and potash rose. Soybeans use these two fertilizer components heavily, so the increase in soybean acres contributed to the increased use of these two primary nutrients.

Expenditures for pesticides were \$8.8 billion, 3.5 percent higher than in 1996. Herbicides constitute between 65 and 70 percent of pesticides applied and are the principal pesti-

cide used on corn. The small change in corn acreage led to very little change in herbicides applied.

Interest expenses were \$13.7 billion, up 3.5 percent from \$13.2 billion in 1996. Interest expenses have risen in each of the last 4 years after a long string of decreases from 1983 to 1993. Interest on nonreal estate debt was \$7.1 billion, up 4.0 percent from \$6.9 billion in 1996. However, nonreal estate interest excluding interest on Commodity Credit Corporation (CCC) loans rose only 3.4 percent. Interest on CCC loans rose nearly 40 percent in 1997, inflating the total increase. Interest on real estate debt was \$6.5 billion, up from \$6.4 billion in 1996.

Contract and hired labor expenses were estimated at \$18.6 billion in 1997, \$1.1 billion higher than in 1996. Total labor expenses have risen every year since 1991. In 4 of those 6 years, total labor expenses have increased more than \$975 million and 6 percent. Total labor expenses in 1997 stood \$4.7 billion (nearly 34 percent) higher than in 1991. Contract labor expenses², increased 21.9 percent, the largest increase since 1989. Wage rates for agricultural service workers in California, which employs more than 30 percent

²Under The Department of Commerce sector accounting model, contract labor is considered to be in the service sector rather than the agricultural sector.

of such workers, rose 5.5 percent. Orange production was record large in 1997, contributing to the rise in labor expenses. Also, utilization of production of noncitrus fruits (apples, grapes, and berries, for example) was estimated up 10 percent from 1996.³

Capital consumption, including operator dwellings, was estimated at \$19.5 billion, up \$100 million from 1996. However, operator dwelling capital consumption rose more than 6.0 percent due to a rise in operator dwelling values. Capital consumption for farm business items was \$16.6 billion, down 0.4 percent.

Capital consumption of service buildings decreased steadily from 1981 to 1994, as nominal new expenditures fell as low as 30 percent of their 1979 peak during 1985-92. Since 1992, service building capital consumption has been around \$2.9 billion. However, while the building construction price index has risen 35 percent since 1985, capital consumption is only 84 percent of its 1985 level. After increasing \$488 million to \$2.2 billion in 1996, building construction reached \$2.4 billion in 1997.

Tractor and farm machinery capital consumption in 1997 was estimated at \$10.9 billion, down from a revised estimate of \$11.0 billion in 1996. After reaching a low point in 1987, tractor and farm machinery capital consumption climbed more than \$1 billion to 1990. Since then, it has ranged between \$10.6 and \$11.0 billion. Almost all of the increase from 1987 to 1990 was due to increases in tractor capital consumption caused by double-digit hikes in tractor prices paid.

Net Farm Incomes Declines In Many States in 1997

Thirty-one of the 50 States experienced declines in net farm income of varying degrees in 1997. These declines were in contrast to the across-the-board increases the prior year. To retain perspective, it is important to remember that 1996 was a truly exceptional year. Farmers benefited from high yields for major crops in 1996 and prices that remained unusually high, particularly given the high levels of production. The value of crop production soared, reflecting rebounds in acres harvested and yields for major crops, both of which had declined in 1995.

Macroeconomic Influences

Crop prices were much higher in the first half of 1996 relative to the same period in the prior year, and tended to remain stable in the latter half of the year despite the rebound in production. Corn and soybeans led the recovery in crop production, and producers of these two crops and hogs were among the principal beneficiaries of favorable prices. Growth in the economies of Southeast Asia in 1995,

1996, and the early months of 1997 raised demand for U.S. agricultural products and helped support commodity prices and boost farm income. The Southeast Asian economies began faltering in the summer of 1997, depressing demand for imports of agricultural commodities.

Economic difficulties in Japan led to a substantial depreciation of the yen, which in turn caused declining demand within Japan for imports and simultaneously lowered the prices of Japanese exports. These consequences had a ripple effect of applying downward pressure on currency values in the countries of Southeast Asia and in larger countries such as Russia, China, and Brazil.

Individuals and companies in other countries often seek to convert their capital into U.S. dollars during periods of domestic economic crises to avoid losses when local currencies depreciate. Because of the increased demand for U.S. dollars, the dollar appreciated in value against the currencies of some of the above countries. The consequence was a relative rise in export prices of U.S. agricultural products, accompanied by a drop in demand in potential importing countries and a decline in U.S. competitiveness with other exporting countries. Wheat is one of the commodities most affected by depreciating currencies because many countries export wheat.

Contrasts in Conditions for Commodities

There were substantial contrasts in the production and market conditions faced by farmers in 1997, depending upon the types of commodities they produced. Cattle producers experienced stable prices throughout the year, at levels significantly above the lows of 1996, and also benefited from lower feed costs as a consequence of declining grain prices. Hog producers were the beneficiaries of rising prices in the first half of 1997. With rising hog prices and low feed costs, hog producers stepped up production only to see prices drop once the extent of the production increase became known. Soybean producers experienced soaring prices in the first half of the year as world stocks dwindled, but saw prices retreat to near beginning-year levels in the latter half of the year.

Perhaps wheat producers suffered the most market adversity. At the beginning of 1997 market prices were low and declined throughout the year. Reduced demand for U.S. wheat exports was a principal factor, as depreciation in currency values in many countries reduced the effective import demand by consuming countries and, at the same time, increased the competitive advantage of wheat-exporting countries.

Dairy prices were affected by additional supplies of milk in States not traditionally known for dairy farming. California, in particular, has experienced a large increase in milk production. The expansion in California is occurring in large, dry-lot dairy operations. By all indications, this type of

³Source: *Fruit and Tree Nuts*, March 1998, FTS-282.

dairy operation appears to incur some of the lowest costs. The implication is that other, higher cost producers will have to leave the industry to bring price and quantity into equilibrium. This process is not unlike what has been occurring in hog production over the last 5 years and what occurred in the broiler industry several decades ago.

These contrasting commodity situations yielded some distinctly different regional effects. Leading cattle States, particularly those with cow-calf operations, were the leaders in year-over-year gains in net farm income. Income was up more than 90 percent in Oklahoma and Wyoming. Income was down more than 50 percent in New York (-51 percent), Wisconsin (-66 percent), Maine (-75 percent), and North Dakota (-90 percent). The first three states are traditional dairy producers, while North Dakota depends heavily on wheat sales. North Dakota wheat producers suffered a one-third drop in production due to lower yields, which meant that they had much less to sell at 1997's lower prices.

Economic Indicators Reveal The Varied Effects

Net value-added from production reflects the sector's contribution to the national economy and the income available to the participants in agricultural production activities. Nationally, the net value-added by the agricultural sector fell 3.7 percent in 1997. But this national average masks a wide range of changes among the States, reflecting their changing values of production. Net value added rose 49 percent in Oklahoma, the largest percentage gain of any State. Four additional States had percentage increases of at least 20 percent, Wyoming (31 percent), Ohio (27 percent), Alaska (21 percent), and Kentucky (20 percent). In contrast, eight States experienced declines of at least 20 percent, led by North Dakota (-46 percent). The other seven were Maine (-32 percent), Minnesota (-25 percent), Nebraska (-25 percent), Washington (-23 percent), Pennsylvania (-21 percent), New York (-21 percent), and Wisconsin (-20 percent).

California continues to lead the Nation in cash receipts and farm income by substantial amounts, reflecting both its substantial land mass and its commodity mix, which is heavily weighted toward commodities with a high value of production per acre. California's net farm income in 1997 slipped slightly, to \$5.8 billion from \$5.9 billion in 1996. Iowa, with \$3.7 billion, remained the State with the second largest net farm income in 1997, despite a reduction of 6.5 percent. Two additional States earned at least \$3.5 billion in net farm income 1997—Texas (\$3.6 billion) and North Carolina (\$3.5 billion). Three additional States exceeded \$2 billion—Georgia, Illinois, and Nebraska.

Supplementary Economic Indicators Add Perspective

Net farm income statistics do not fully convey the magnitude of the economic activity represented by production

agriculture. The amount of factor payments and intermediate consumptions outlays incurred in generating net farm income are supplementary indicators reflecting the level and impact of the sector's contribution to a State's economy, providing additional perspectives on the contributions of farm businesses. Payments to the owners of factors of production represent earnings of the nonoperators who do not share in the risks of production but supply land, capital, and labor employed in the farm production processes. Intermediate consumption outlays represent purchases of inputs from other sectors of the economy and produce a multiplier effect through the generation of additional profits and employment by expanding the volume of business, which in turn leads to additional purchases and business opportunities. In total, factor payments were unchanged in 1997, as an increase of 3.9 percent in expenditures for hired labor and a 3.5-percent rise in interest paid were exactly offset by a 7.4-percent drop in net rental payments to nonoperator landlords for use of their land.

Labor markets were tight nationwide with the strong economy increasing demand for workers at all skill levels. Farmers were required to pay higher wages and benefits to obtain the services of laborers. The interest costs largely reflected the continuing upward trend in debt held by participants in the farm sector, as interest rates did not rise in 1997. The lower rental payments reflect the 2.7-percent drop in value of crop production, particularly in cases of share-rental arrangements, where landlords receive a portion of the harvest. In 1997, landlords shared in the substantial huge harvests but also in the misfortunes encountered in marketing their share at the lower prices available to tenants. Intermediate consumption outlays rose a solid 5.1 percent, led by expenditures for livestock purchases (up 23 percent) and contract labor (up 22 percent). The big jump in the purchases of livestock, which consists of feeder animals and breeding stock, reflected the improved expectations of beef and hog producers.

In 1997, factor payments totaled \$42.9 billion. States with at least \$2 billion in factor payments were California (\$6.2 billion), Iowa (\$2.7 billion), Illinois (\$2.4 billion), and Texas (\$2.4 billion). The agricultural sectors of the four States are quite different, which is reflected in the distribution of factor payments. In California, expenditures for hired labor comprised 69 percent of total factor payments, while net rent accounted for 11 percent. California was the only one of the four States in which factor payments rose appreciably in 1997 and the hired labor component was the reason. Factor payments declined in Iowa and Illinois because of a drop in rent paid to landlords. Net rental payments far exceeded payments to labor in both Iowa (51 percent to 10 percent) and Illinois (56 percent to 13 percent). In Texas, the three factors of production shared almost evenly in the payments. California's production mix is highly diversified and dominated by labor-intensive vegetables and specialty crops. The production mix in Iowa and Illinois is predomi-

nantly corn, soybeans, and hogs, which are conducive to mechanization, allowing capital to be substituted for labor. In Texas, the combination of cattle and cotton necessitates a more balanced employment of production factors.

In 1997, intermediate consumption outlays totaled \$118.6 billion. States with at least \$5 billion in such purchased inputs were California (\$13.5 billion), Texas (\$8.7 billion), Iowa (\$ 6.2 billion), Nebraska (\$5.9 billion), Kansas (\$5.9 billion), and Minnesota (\$5.3 billion). Nationally, intermediate consumption outlays were up only 5.1 percent in 1997 and this was generally the case across the States also. Farmers were geared up for full production during 1994-97 and the vagaries of weather and market prices, occurring beyond the stage when farmers have committed to expenditure outlays, accounted for the differences in value-added and income in the 4 years.

Net Value-Added Measures Changes by State

Net value-added reflects the value of all goods and services produced within the year, whether sold or added to inventory, net of the production-related expenses paid to other sectors of the economy (as defined by the U.S. Department of Commerce). This net value-added is affected by changes in value of output and production expenditures. California, the Nation's leader in net value-added, exhibited an increase of \$118 million (1 percent) in 1997. The total value of California's farm sector production rose \$1.5 billion to near \$26.8 billion, and the expenditures associated with this production (intermediate consumption outlays and factor payments) was up \$1.3 billion. Factor payments were up by \$218 million due to the higher labor costs. The net result was a 1.7-percent decline in net farm income earned by farm operators. California produces mostly high valued commodities with much of the water requirements supplied through irrigation. As a consequence, its production is generally less susceptible to the vagaries of the weather. Except for rice, California is also not a leading grain producer, and therefore escaped the problems associated with declining grain prices that plagued the Northern Plains and to a lesser extent the Midwest, which benefited from favorable soybean market conditions.

Oklahoma had the largest gain in net value-added (49 percent) . Because operators bear the risks of production and reap most of the short-term gains and losses, it is not surprising that Oklahoma's farm operators also had the biggest percentage gain in net farm income (96 percent) . Cattle comprised 46 percent of commodity sales in Oklahoma and 1997 was a good year for cattle producers.

Cattle and Dairy Leading Commodities In Cash Receipts

Cattle and calves remained the top generator of cash receipts for 1997, as sales surged \$5 billion or 16 percent. In fact,

sales of cattle and calves are still \$3.3 billion or 8.3 percent below the peak attained in 1993 but 1997 represented a significant reversal of the slide. Historically, cattle production and the related herd size have followed the existence of a multiyear cycle and indications are that cattle had previously been in the downward phase of that cycle. As the largest of the animals produced in significant quantities, cattle have by far the longest gestation period and the longest growth stage, which contribute to the length of the cycle.

Texas led in cattle and calf receipts with \$5.8 billion, up \$454 million (8.4 percent) from the prior year but still \$340 million (-5.5 percent) below its 1993 peak. Nebraska (\$4.4 billion) and Kansas (\$4.4 billion) were the second and third leading producers of cattle. Dairy products ranked second in cash receipts, with California remaining the sales leader with over \$3.6 billion. Dairy sales in California slipped \$97 million (-2.6 percent) in 1997, but the State's sales have risen \$955 million (36 percent) since 1993. This shift is significant both geographically in the replacement of production in the Lakes States and structurally in the production of milk via large operations. The rapid population growth in California and other adjacent States has created an explosion in the demand for dairy products sufficient to enable large dairies capable of achieving economies of scale to be cost competitive, regionally. Wisconsin was second in dairy sales but lagged considerably behind California, followed by New York, Pennsylvania, and Minnesota. These five States, the only ones with sales of dairy products exceeding \$1 billion, had over 50 percent of all dairy sales.

Corn and soybeans were the third- and fourth-ranked commodities in the Nation, with Iowa and Illinois the undisputed leaders in sales. Iowa's corn receipts were highest at \$3.8 billion, followed by Illinois with \$3.5 billion. Iowa also led in soybean sales of \$3.3 billion followed by Illinois, with \$3.1 billion for 1997. This is first time any States have reached \$3 billion in soybean sales, which indicates how exceptional 1997 was for soybean producers. Broilers were the fifth-ranked commodity, with Georgia and Arkansas the leading producers with sales in excess of \$2 billion. Alabama, North Carolina, and Mississippi each had broiler sales exceeding \$1 billion.

California, Texas and Iowa Leading States In Cash Receipts

The top 10 States in cash receipts for all commodities in 1997 were California, Texas, Iowa, Nebraska, Illinois, Kansas, North Carolina, Minnesota, Florida, and Georgia. The share of total cash receipts derived from crop or livestock sales varied greatly among these 10 top-ranked States. California led the Nation in crop sales with \$19 billion, and was the top producing State for eight of the sector's top 25 commodities: dairy products, greenhouse and nursery products, hay, grapes, tomatoes, lettuce, almonds, and strawberries. The value of California's output is high

Table 13--United States: Leading commodities for cash receipts, 1997

Rank	Items	Value of U.S. receipts	Percent of U.S. total	Cumulative percent 1/	Rank in prior year
		1,000 dollars	---Percent---		
	All commodities	208,664,538	100.0	--	--
	Livestock and products	96,567,947	46.3	--	--
	Crops	112,096,591	53.7	--	--
1	Cattle and calves	36,094,327	17.3	17.3	1
2	Dairy products	20,989,271	10.1	27.4	2
3	Corn	20,456,489	9.8	37.2	3
4	Soybean	18,320,769	8.8	45.9	4
5	Broilers	14,151,512	6.8	52.7	5
6	Hogs	13,196,781	6.3	59.0	6
7	Greenhouse and nursery	11,431,281	5.5	64.5	7
8	Wheat	8,925,733	4.3	68.8	8
9	Cotton	6,515,092	3.1	71.9	9
10	Hay	4,633,297	2.2	74.1	11
11	Chicken eggs	4,530,522	2.2	76.3	10
12	Grapes	3,053,040	1.5	77.8	13
13	Tobacco	2,885,613	1.4	79.2	12
14	Turkeys	2,880,461	1.4	80.5	15
15	Potatoes	2,258,811	1.1	81.6	14
16	Tomatoes	1,852,193	0.9	82.5	18
17	Oranges	1,716,993	0.8	83.3	17
18	Rice	1,656,860	0.8	84.1	19
19	Sorghum grain	1,618,736	0.8	84.9	20
20	Lettuce	1,607,765	0.8	85.7	21
21	Apples	1,526,681	0.7	86.4	16
22	Sugar beets	1,348,937	0.6	87.1	22
23	Almonds	1,126,850	0.5	87.6	23
24	Peanuts	932,438	0.4	88.0	25
25	Strawberries	908,163	0.4	88.5	NA
	Government payments 2/	7,495,953	--	--	--

-- = Not applicable. Number may not add due to rounding.

1/ The cumulative percentage is the sum of the percent of U.S. total for each commodity and all preceding commodities. 2/ Government payment made directly to farmers in cash or Payment-in-Kind

because milk and other commodities in which California is a leading producer, tend to be perishable and expensive to transport, either because they are bulky or they require special handling, such as refrigeration. Three-quarters of California's farm sales were from crops; fruits and nuts equaled 30 percent, vegetables 24 percent, and greenhouse and nursery 9 percent.

Florida's pattern of cash receipts is similar to California's, with vegetables, fruits and nuts, and greenhouse and nursery accounting for 69 percent of agricultural sales. By contrast, 61 percent of Texas's cash receipts were from livestock, and 71 percent of that was cattle and calves. Over 8 percent of the Nation's livestock sales value was attributed to Texas. Iowa's sources of cash receipts are, in contrast to those of Texas, more heavily weighted to crops, which comprise 57 percent of the total. Feed grains and oilseeds represented 56 percent of Iowa's sales, while hogs accounted for 23 percent. Iowa leads the Nation in corn, soybeans, and hog sales.

In 1997, 12 States had crop receipts valued in excess of \$3 billion and, in order of sales, were: California, Illinois, Iowa, Texas, Florida, Nebraska, Minnesota, Kansas, Washington, Indiana, North Carolina, and Ohio. The 12 States represented 63 percent of the cash receipts earned from crop sales. High-valued fruits, vegetables, and specialty crops were the major contributors to crop cash receipts in California, Florida, Washington, and North Carolina. Grains and oilseeds were the major components of cash receipts in Ohio, Indiana, Illinois, Iowa, Minnesota, Nebraska, and Kansas. The commodity mix within these and all other States is determined by comparative advantages. For example, the Midwestern States contain some of the Nation's most productive soil and receive adequate rainfall, but are too far north to produce most of the specialty crops, such as tobacco, cotton, and citrus.

Ranked by cash receipts earned from livestock, the top 10 States were Texas, California, Nebraska, Iowa, Kansas, North Carolina, Wisconsin, Minnesota, Georgia, and

Arkansas. Collectively, these States represented 52 percent of the livestock receipts for the Nation. Texas, Nebraska, and Kansas, ranked 1 through 3 in livestock receipts generated from cattle sales, accounting for 40 percent of total revenue from cattle and calves. The largest shares of dairy receipts were produced by California and Wisconsin. Dairy production has surged in California but declined in

Wisconsin. Large dry-lot operations, which are common in California and benefit from economies of both specialization and scale, have enabled the State's producers to gain a competitive edge. Hogs, a key component of livestock sales in Iowa, have rapidly grown into the leading commodity for North Carolina. The value of hogs marketed in each State exceeded \$2 billion. In 1975 North Carolina was tenth in

Table 14--Net farm income for States, 1993-997

States	1993	1994	1995	1996	1997	Change 1996 to 1997	1990-97 average	1997 as % of 1990-97 average
	1,000 dollars					Percent	\$1,000	Percent
AK	10,207	8,443	11,800	11,126	14,388	29.3	10,072	142.8
AL	1,090,049	1,206,305	942,755	1,095,529	1,284,191	17.2	1,096,715	117.1
AR	1,134,780	1,491,561	1,467,852	2,066,026	1,856,631	-10.1	1,384,327	134.1
AZ	775,106	473,357	750,805	701,464	609,613	-13.1	659,778	92.4
CA	5,921,631	5,823,978	4,860,204	5,891,511	5,790,885	-1.7	5,436,805	106.5
CO	1,029,955	579,851	592,253	838,187	788,444	-5.9	796,903	98.9
CT	196,431	185,075	141,068	152,837	150,833	-1.3	162,814	92.6
DE	113,666	124,895	82,006	114,819	95,544	-16.8	116,202	82.2
FL	2,398,373	2,277,293	1,844,499	1,829,930	1,839,087	0.5	2,213,075	83.1
GA	1,541,161	2,107,697	1,934,966	2,296,682	2,511,711	9.4	1,859,917	135.0
HI	44,052	35,748	35,084	19,428	19,166	-1.3	48,791	39.3
IA	722,744	2,868,493	1,835,598	3,931,010	3,674,319	-6.5	2,447,080	150.2
ID	1,117,332	664,583	653,996	825,005	524,288	-36.5	812,692	64.5
IL	1,329,490	1,980,313	552,539	2,272,129	2,184,663	-3.8	1,531,674	142.6
IN	797,010	772,278	397,491	1,203,730	1,365,618	13.4	783,773	174.2
KS	1,614,498	1,756,277	900,308	1,881,776	1,789,172	-4.9	1,574,402	113.6
KY	1,125,854	1,195,048	799,362	1,109,114	1,501,356	35.4	1,149,516	130.6
LA	383,304	525,106	568,602	746,534	583,064	-21.9	481,226	121.2
MA	154,338	148,241	117,835	162,207	186,606	15.0	153,058	121.9
MD	308,523	296,517	197,399	361,547	274,654	-24.0	302,621	90.8
ME	123,802	106,535	53,366	86,469	21,741	-74.9	95,312	22.8
MI	460,427	342,242	592,932	396,943	473,950	19.4	461,969	102.6
MN	92,648	1,462,266	882,883	2,276,393	1,317,588	-42.1	1,333,180	98.8
MO	441,612	779,790	314,517	1,190,364	1,403,806	17.9	779,381	180.1
MS	374,677	670,735	576,154	945,945	873,214	-7.7	586,457	148.9
MT	872,112	425,751	402,466	348,976	323,102	-7.4	496,430	65.1
NC	2,653,995	3,069,480	2,741,611	3,369,661	3,512,706	4.2	2,797,616	125.6
ND	601,149	849,013	363,872	1,052,859	104,912	-90.0	644,556	16.3
NE	1,956,515	2,213,713	1,626,263	3,378,298	2,084,535	-38.3	2,319,384	89.9
NH	49,282	48,047	45,738	51,254	44,108	-13.9	46,306	95.3
NJ	208,926	256,209	225,472	260,634	172,720	-33.7	209,871	82.3
NM	544,889	450,395	321,887	354,897	381,646	7.5	427,508	89.3
NV	98,734	59,757	52,448	56,901	53,818	-5.4	68,072	79.1
NY	565,463	471,100	297,428	471,454	232,752	-50.6	464,005	50.2
OH	827,053	1,164,833	993,893	1,344,464	1,928,115	43.4	1,142,005	168.8
OK	1,156,521	1,106,687	525,223	578,569	1,132,682	95.8	898,374	126.1
OR	676,453	555,653	391,913	537,489	442,652	-17.6	527,349	83.9
PA	893,175	752,309	483,811	943,735	594,412	-37.0	759,693	78.2
RI	46,093	44,883	40,548	45,035	43,042	-4.4	41,921	102.7
SC	323,944	525,313	395,586	502,376	581,222	15.7	418,121	139.0
SD	976,063	1,245,181	659,470	1,459,996	1,045,951	-28.4	1,064,321	98.3
TN	549,677	667,478	482,702	417,329	535,079	28.2	520,636	102.8
TX	4,151,765	3,803,456	2,735,633	2,698,197	3,574,048	32.5	3,314,874	107.8
UT	316,796	224,968	182,811	203,877	208,827	2.4	244,221	85.5
VA	522,688	663,356	567,964	596,782	465,551	-22.0	599,617	77.6
VT	120,552	119,862	94,732	135,950	115,941	-14.7	118,088	98.2
WA	1,391,421	1,020,325	880,856	1,471,144	760,906	-48.3	1,068,765	71.2
WI	382,349	465,817	237,292	578,972	199,949	-65.5	553,005	36.2
WV	82,146	84,705	40,223	17,100	17,423	1.9	50,867	34.3
WY	297,594	95,498	87,567	69,356	133,378	92.3	165,059	80.8
US	43,567,026	48,266,417	35,983,683	53,352,010	49,824,006	-6.6	45,238,404	110.1

cash receipts from hogs, accounting for 3 percent of the Nation's sales. By 1997, North Carolina was second in hog sales, representing 15 percent of the market. Broilers were the leading commodity in both Georgia and Arkansas, and the second leading commodity in receipts for North Carolina.

Greenhouse and nursery production is one of the fastest growing segments of U.S. agriculture. In 1975 greenhouse and nursery products were 1.9 percent of farm sales. By 1997 they had reached 5.5 percent. In 1997, greenhouse and nursery cash receipts ranked first in farm sector sales in six States (Alaska, Connecticut, Florida, New Jersey, Oregon, Rhode Island). In all, greenhouse and nursery ranked as one of the top five commodities in agricultural sales for 23 States. A common characteristic is that most of these are coastal States, but the causality linking greenhouse/nursery production to these States is the higher density of population there. Greenhouse and nursery products tend to be bulky and perishable, making shipment over long distances costly.

Net Cash Income Declined In Half of the States

Net cash income was lower in 25 of the 50 States when compared to 1996, but in most cases the decline was less dramatic than the decrease in net farm income. Net cash income is a measure of solvency, in contrast to net farm income, which is a measure of the value of production after netting out all of the operator's outlays. Net cash income is the cash earnings realized within the year from the sales of production and the conversion of assets (both inventories—in years in which reduced—and capital consumption) into cash.

- a. Net cash income represents the funds that are available to farm operators to meet family living expenses and make debt payments. The decisions as to how much of the cash income to allocate to each are not independent of the other.
- b. Net cash income exhibits less volatility than net farm income as producers manage their cash flow for several objectives: payment of debt and family expenses, smoothing year-to-year incomes in order to minimize income taxes under progressive tax rates, and maximizing incomes by anticipating future prices—particularly postponing sales into the next year when large harvests depress prices.
- c. Because it may involve a drawdown in assets, net cash income cannot be maintained for long without being replenished through production.

Farmers are able to adopt strategies in managing their business activities to achieve specific cash-flow objectives, and the choice of strategy will be dependent on the production

income scenario for the year. For example, farmers can adjust inventories to manage their cash income despite variability in production. Current year sales, not output, are the basis of net cash income. In 1995, farmers sold off stocks of crops, valued at \$5.4 billion, which had built up from their 1994 bumper crop, thus benefiting from higher prices associated with a substantial decline in crop production in 1995. Consequently, farmers were able to maintain or increase cash receipts for major crops in 1995 despite a mediocre production year.

With the rebound in crop production in 1996, farmers rebuilt crop inventories by \$8.9 billion, postponing sales into the next year. This strategy frequently brings benefits in two forms: from prices that typically rebound from harvest lows in years when production is high and from smoothing their annual incomes to reduce income tax obligations under progressive tax rates. In 1997 farmers produced a second consecutive year of large crops, which is a rare occurrence. In adapting to the resulting low prices, farmers sold within the year approximately what they harvested, incrementing inventories by a modest \$323 million. In essence, they emptied their storage facilities of sufficient quantities to make room for the new crop and maintained a large inventory, perhaps in hopes that market prices might rebound.

To illustrate what farmers can achieve from strategies to maintain net cash income for family living expenses and debt payment, net farm income declined in 31 States while net cash income was down in only 25 states. Even more telling, the largest decline in net cash income for any State was 36 percent, while eight states suffered a drop in net farm income of at least 37 percent. The largest two declines were 75 percent in Maine and 90 percent in North Dakota. Occasionally, producers find there are no strategies for managing their net cash income, and in some situations, they may not have much incentive to do so. For example, net cash income in Wyoming was up 147 percent in 1997. Prices were strong for feeder calves in 1997 and calves can't be held in inventory solely to smooth out the income flow. Consequently it was an excellent year for Wyoming's cow-calf operations.

Net cash income from farming was highest in California (\$6.2 billion) and exceeded \$2 billion in 10 additional States: Iowa (\$4.6 billion), Texas (\$3.8 billion), North Carolina (\$3.7 billion), Nebraska (\$2.9 billion), Illinois (\$2.8 billion), Georgia (\$2.7 billion), Kansas (\$2.3 billion), Arkansas (\$2.1 billion), Florida (\$2.0 billion), and Ohio (\$2.0 billion). Net cash income was higher than in the preceding year in all 11 States. With the possible exception of California, the combined effects of large corn and soybean crops, favorable soybean prices, big jumps in cattle and hog production, and lower feed costs contributed to a rise of cash income in these States.

Cost and Return Highlights by Commodity, 1997

Little change seen in 1997 production costs

Costs of producing most crops and livestock commodities showed little change in 1997 with many declining slightly. Since the crop costs and returns estimates are on a per acre basis, one does not expect major year-over-year changes. On a per bushel or per head basis, however, yields can have a dramatic effect on costs. Production cost and return estimates by region can be found in the appendix.

Corn—Average corn yields changed little from 1996 to 1997, but harvest-period prices were about 11 percent lower. Corn harvest prices fell from more than \$2.80 per bushel in 1996 to about \$2.50 in 1997. As a result, average returns above cash costs fell more than 20 percent from record highs in 1996. Residual returns to management and risk were down about \$30 an acre to \$18.78 on average among all U.S. corn growers. At 1997 costs and yields, break-even corn prices at harvest were \$1.57 to cover cash costs and \$2.66 for economic costs. Despite little change in corn production costs between 1996 and 1997, declining corn prices in late 1997 likely dampened expectations for 1998.

Soybeans—Higher soybean yields in 1997 more than offset lower prices to eclipse the record returns of 1996. The average soybean yield was up about 15 percent from 1996, while the average price was down about 5 percent. The result was record cash returns of \$153 per acre and returns above economic costs of nearly \$40 per acre. Break-even prices at 1997 costs and yields were \$2.95 per bushel for cash costs and \$5.61 for economic costs, well below the \$6 plus soybean prices obtained at harvest. However, declining prices late in 1997 indicate that lower returns are likely for 1998.

Wheat—Nationally, 1997 wheat production was up around 10 percent from 1996 spurred by a 22-percent increase in yields. Total cash costs rose 2 percent from 1996 while economic costs remained stable at \$180 per acre. However, costs on a per bushel basis declined 15 percent, due primarily to a good winter wheat crop. The prices received at harvest averaged \$3.49 per bushel, down from 1996. This was more than enough to cover cash costs, but not enough to cover total economic costs.

Cotton—Area planted to cotton continued to fall across the United States in 1997. Cotton acreage declined 100,000 acres in California because of pest problems, but acreage increased in Georgia by the same amount. Total lint production rose only slightly while per acre yields improved.

Cash and economic costs at the U.S. level were roughly the same in 1997 as in 1996. Residual returns to management and risk were negative, but improved about \$10 per acre. Cotton growers in the Southeast and Delta had positive residual returns in 1997. Substantially lower yields in the Southeast reduced gross value by roughly \$100 per acre and residual returns were almost \$100 per acre lower as a result. Delta growers had yield increases of 25 percent (more than 150 pounds per acre), and saw residual returns improve by more than \$100 per acre as a result. Residual returns remained negative (but improved) for growers in the Southern Plains and the Southwest. Costs changed little in the Southern Plains, but improved yields and prices raised gross value by about \$60 per acre. In the Southwest, yields improved slightly, price improved somewhat, and returns improved by about \$40 per acre.

Rice—Harvest-month rice prices in 1997 rose above 1996, but lower U.S. yields kept market value about the same. Total economic costs were up slightly, but lower fertilizer and fuel expenses helped reduce variable cash expenses. Break-even rice prices at harvest were \$7.82 per cwt for cash costs and \$11.69 for total economic costs, compared with a harvest-month price of \$10.10 per cwt.

Sorghum—Area planted to sorghum was down 25 percent from 1996, but above 1995 levels. Production was down nearly 20 percent from 1996, but substantially higher than in 1995. U.S. sorghum yields rose from 1996 to 1997 due to higher yields in the Southern Plains. Average yields fell slightly in the Central Plains, but were still considerably higher than in the Southern Plains. Average price per bushel was down about 90 cents in the Southern Plains, but less than 25 cents lower in the Central Plains.

The total cash cost of producing sorghum in 1997 was almost the same as in 1996. Economic costs were only \$1 per acre more in 1997 at the national level. Regionally, however, cash costs in the Southern Plains were slightly above 1996 levels while cash costs were lower in the Central Plains. Economic costs were about \$7 per acre higher in the Southern Plains than in 1996.

Residual returns to management and risk remained negative across the United States, declining almost \$20 per acre in 1997. Sorghum growers in the Central Plains fared relatively better than growers in the Southern Plains. Central

Plains growers saw receipts drop \$20 per acre due to both lower price and yield. Residual returns also dropped almost \$20 per acre.

Barley—The value of the 1997 barley crop at harvesttime decreased 24 percent from 1996 due primarily to lower prices. Cash costs and total economic costs fell from 1996. Break-even prices at harvest were \$2.61 per bushel for cash costs plus replacement and \$3.60 for total economic costs, compared with a harvest-month price of \$2.28 per bushel.

Oats—Oat plantings for 1997 continued to decline as in previous years. Yields and harvest-month prices were also down, reducing gross value of production. Although costs of production also decreased, the drop in gross value was larger. Residual returns to management and risk on a national level turned from positive in 1996 to negative in 1997.

Sugar Beets—U.S. sugar beet yields in 1997 were up 5 percent from 1996. Total fixed cash and economic costs and returns cannot be discussed at this time, as they depend on 1997 beet prices that are not yet available. The 1997 production costs and returns will be updated next year.

Peanuts—Area planted to peanuts rose slightly from 1996 to 1997, mostly due to continued increases in Texas. Area planted continued to fall in Georgia, North Carolina, Oklahoma, and Virginia. There was a slight decline in overall peanut production. Peanut prices were mostly unchanged. Growers in the Virginia-Carolina region continue to have the highest yields, although 1997 yields were down nearly 10 percent from 1996. Yields in the Southern Plains rose nearly 10 percent, but this region had the lowest per acre yields in the country.

Total cash cost of producing peanuts was up in 1997 due to sharp increases in fixed costs. Variable cash expenses were up only slightly, but fixed cash expenses rose \$30 per acre. Lower gross value and higher cash expenses led to negative residual returns to management and risk of \$40 per acre at the national level. Residual returns to management and risk were negative across all regions as well. Residual returns in the Southern Plains, while still negative, improved by \$35 per acre, mostly due to improved yields. In contrast, growers in the Virginia-North Carolina region saw yields fall more than 200 pounds per acre and residual returns fell \$125 per acre from 1996.

Tobacco—On a per acre basis, costs of growing both flue-cured and burley tobacco changed little in 1997. However, the 1997 burley yield fell about 100 pounds and the flue-cured yield rose about 150 pounds, which pushed per hundredweight costs for burley up and for flue-cured down.

The estimates for flue-cured tobacco are based on new survey data from the 1996 crop. The new format of presenting the estimates is now consistent with the format for all other

commodities in the costs and returns accounts. This should make it easier to compare tobacco production costs with other commodities that can be grown on the same farm.

Milk—Returns to dairying in 1997 declined in all six farm production regions. Most of the decline in returns was due to higher feed costs and lower milk prices. For farms with good supplies of homegrown forage, 1997 incomes were not tight compared with most recent years, particularly if they also produced some of their own feed grains. On the other hand, farmers who had to purchase forages were hit hard by soaring prices of dairy-quality hay. Alfalfa hay prices in 1997 averaged about a fourth higher than just 2 years earlier. A wide variety of weather-related problems limited output of top quality hay in 1997 in most regions. The impact could have been worse if another good crop of corn silage had not been available in much of the country. Returns in 1997 were not enough to alter the position of those producers under long-run income stress, even after the strong 1996 returns. However, some farms continued to expand. But the lack of assured supplies of good forage increased the risks of rapid herd expansion.

Hogs—Average hog prices during 1997 were higher than in 1996, but varied substantially. Market hog prices surged to near \$60 per cwt by mid-1997 and then fell to about \$70 in late 1997. As a result, the value of market hogs was largely unchanged from 1996 whereas feeder pig values rose about 25 percent. Hog production costs were generally lower due mainly to a decline in corn and soybean prices. Feed costs were about 10 percent below those in 1996. Average returns to hog production improved about \$4 per cwt for farrow-to-finish operations and nearly \$25 per cwt for feeder pig producers, but declined about \$2 per cwt for hog finishers. However, residual returns to management and risk remained negative as they have since 1992. Negative average returns to resources used in the hog sector help explain the declining number of hog operations. The total number of U.S. hog operations fell about 11 percent from 1996 to 1997.

Cow-Calf—Based on new survey information for 1996, cash costs for U.S. cow-calf operations in 1997 increased from 1996. Although feed grain prices were lower in 1997, pasture and range conditions once again were disappointing and hay prices were at record levels, indicating very tight forage supplies. The present cattle cycle entered the liquidation phase in late 1995 and intensified in 1996 as grain stocks declined and prices set new records due to a sharp decline in the 1995/96 grain harvest. Conditions for cow-calf producers were further exacerbated by a severe drought that spread from the Southwest in late spring into the Central Plains, the heart of the cattle raising industry, by midsummer. Drought sharply reduced grazing prospects, leading to higher hay prices that forced cattlemen to cull herds sharply and retain fewer stocker cattle. Reduced forage supplies lowered the demand for stocker cattle to be retained for pasture gain and, at the same time, rapidly rising

grain prices reduced the break-even prices cattle feeders could pay for feeder cattle. Beef cow slaughter in 1997 remained somewhat large as less efficient cows were culled due to continued tight forage supplies. Without larger num-

bers of heifers being retained and bred, beef cow numbers declined, and thus, the calf crop declined. Consequently, supplies of feeder cattle outside feedlots and available for placement declined and feeder cattle prices rose.

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Appendix table 1--Deriving farm operator household income estimates from the Agricultural Resource Management Study (ARMS) that are consistent with Current Population Survey (CPS) methodology, 1993-98 1/

	1993	1994	1995	1996	1997P	1998F
Dollars per farm						
Net cash farm business income 2/	11,248	11,389	11,218	13,502	12,460	n.a.
Less depreciation 3/	6,219	6,466	6,795	6,906	6,578	n.a.
Less wages paid to operator 4/	454	425	522	531	513	n.a.
Less farmland rental income 5/	534	701	769	672	568	n.a.
Less adjusted farm business income due to other household(s) 6/	872	815	649	1,094	*1,429	n.a.
Dollars per farm operator household						
Equals adjusted farm business income	3,168	2,981	2,484	4,300	3,373	n.a.
Plus wages paid to operator	454	425	522	531	513	n.a.
Plus net income from farmland rental 7/	n.a.	n.a.	1,053	1,178	945	n.a.
Equals farm self-employment income	3,623	3,407	4,059	6,009	4,831	n.a.
Plus other farm-related earnings 8/	1,192	970	661	1,898	1,158	n.a.
Equals earnings of the operator household from farming activities	4,815	4,376	4,720	7,906	5,989	4,564
Plus earnings of the operator household from off-farm sources 9/	35,408	38,092	39,671	42,455	46,358	45,060
Equals average farm operator household income comparable to U.S. average household income, as measured by the CPS	40,223	42,469	44,392	50,361	52,347	49,623
Dollars per U.S. household						
U.S. average household income 10/	41,428	43,133	44,938	47,123	49,692	n.a.
Percent						
Average farm operator household income as percent of U.S. average household income	97.1	98.5	98.8	106.9	105.3	n.a.
Average operator household earnings from farming activities as percent of average operator household income	12.0	10.3	10.6	15.7	11.4	n.a.

P = Preliminary. F = forecast. n.a. = not available. * = The relative standard error exceeds 25 percent, but is no more than 50 percent.

1/ This table derives farm operator household income estimates from the Agricultural Resource Management Study (ARMS) that are consistent with Current Population Survey (CPS) methodology. The CPS, conducted by the Census Bureau, is the source of official U.S. household income statistics. The CPS defines income to include any income received as cash. The CPS definition departs from a strictly cash concept by including depreciation as an expense that farm operators and other self-employed people subtract from gross receipts when reporting net cash income.

2/ A component of farm sector income. Excludes income of contractors and landlords as well as the income of farms organized as nonfamily corporations or cooperatives and farms run by a hired manager. Includes the income of farms organized as proprietorships, partnerships, and family corporations. 3/ Consistent with the CPS definition of self-employment income, reported depreciation expenses are subtracted from net cash income. The ARMS collects farm business depreciation used for tax purposes.

4/ Wages paid to the operator are subtracted here because they are not shared among other households that have claims on farm business income. These wages are added to the operator household's adjusted farm business income to obtain farm self-employment income.

5/ Gross rental income is subtracted here because net rental income from the farm operation is added below to income received by the household.

6/ More than one household may have a claim on the income of a farm business. On average, 1.1 households share the income of a farm business.

7/ Includes net rental income from the farm business. Also includes net rental income from farmland held by household members that is not part of the farm business. In 1993 and 1994, net rental income was collected as part of off-farm income.

8/ Wages paid to other operator household members by the farm business and net income from a farm business other than the one being surveyed. In 1996, also includes the value of commodities provided to household members for farm work.

9/ Wages, salaries, net income from nonfarm businesses, interest, dividends, transfer payments, etc. In 1993 and 1994, also includes net rental income from farmland. 10/ From the CPS.

Sources: U.S. Dept. of Agriculture, Economic Research Service, 1993, 1994, and 1995 Farm Costs and Returns Survey (FCRS), and 1996 and 1997 Agricultural Resource Management Study (ARMS) for farm operator household data.

U.S. Dept. of Commerce, Bureau of the Census, Current Population Survey (CPS), for U.S. average household income.

Appendix table 2--Farm marketings, 1996 and 1997, government payments, 1997 and principal commodities, 1997, by State

State	Farm marketings, 1996			Farm marketings, 1997			1997		State rank for total farm marketings, four principal commodities in order of marketing receipts, and percentage of total marketings
	Total	Crops	Livestock and products	Total	Crops	Livestock and products	Government payments		
AL	3,169,500	807,685	2,361,815	3,227,482	796,205	2,431,277	65,785	26-Broilers, cattle/calves, cotton, chicken eggs (76%)	
AK	29,343	23,235	6,108	32,426	26,152	6,274	1,490	50-Greenhouse, dairy, hay, potatoes (83%)	
AR	5,844,001	2,470,150	3,373,851	5,862,203	2,446,386	3,415,817	274,857	11-Broilers, soybeans, rice, cotton (71%)	
AZ	2,145,369	1,305,852	839,517	2,145,445	1,257,033	888,412	46,667	31-Cattle/calves, dairy, lettuce, cotton (64%)	
CA	23,497,238	17,285,417	6,211,821	25,289,054	18,994,815	6,294,239	220,536	1-Dairy, grapes, greenhouse, cattle/calves (40%)	
CO	4,125,053	1,362,317	2,762,736	4,399,249	1,387,670	3,011,579	175,626	17-Cattle/calves, corn, wheat, dairy (72%)	
CT	489,009	253,156	235,853	496,459	278,719	217,740	1,384	43-Greenhouse, dairy, aquaculture, chicken eggs (63%)	
DE	753,379	180,482	572,897	747,653	174,181	573,472	5,725	40-Broilers, soybeans, greenhouse, corn (83%)	
FL	6,243,564	5,037,751	1,205,813	6,243,197	4,978,356	1,264,841	19,047	9-Greenhouse, oranges, tomatoes, sugar (53%)	
GA	5,730,937	2,451,728	3,279,209	5,887,154	2,445,260	3,441,894	109,207	10-Broilers, cotton, peanuts, chicken eggs (63%)	
HI	486,583	420,357	66,226	483,179	415,182	67,997	554	45-Pineapples, sugar, greenhouse, macadamia nuts (60%)	
IA	12,148,317	6,697,743	5,450,574	12,840,692	7,310,947	5,529,745	712,901	3-Corn, soybeans, hogs, cattle/calves (91%)	
ID	3,372,190	2,042,690	1,329,500	3,315,014	1,926,430	1,388,584	110,429	24-Cattle/calves, dairy, potatoes, wheat (68%)	
IL	8,515,864	6,453,177	2,062,687	9,276,040	7,339,362	1,936,678	552,486	5-Corn, soybeans, hogs, cattle/calves (88%)	
IN	5,533,078	3,619,627	1,913,451	5,506,236	3,610,023	1,896,213	265,166	14-Corn, soybeans, hogs, chicken eggs (77%)	
KS	7,518,779	2,977,578	4,541,201	9,001,475	3,984,532	5,016,943	529,784	6-Cattle/calves, wheat, corn, sorghum grain (82%)	
KY	3,569,275	1,842,389	1,726,886	3,632,928	1,654,874	1,978,054	83,067	21-Tobacco, horses/mules, cattle/calves, soybeans (66%)	
LA	2,328,143	1,640,635	687,508	2,139,969	1,480,538	659,431	157,346	32-Cotton, sugar, rice, soybeans (54%)	
MA	501,698	392,006	109,692	532,276	430,352	101,924	1,196	41-Cranberries, greenhouse, dairy, apples (71%)	
MD	1,540,491	639,356	901,135	1,538,383	623,088	915,295	19,490	36-Broilers, greenhouse, dairy, soybeans (68%)	
ME	481,642	219,896	261,746	486,119	227,767	258,352	4,197	44-Potatoes, dairy, chicken eggs, aquaculture (68%)	
MI	3,603,837	2,154,321	1,449,516	3,587,753	2,235,720	1,352,033	121,287	22-Dairy, greenhouse, corn, soybeans (55%)	
MN	8,800,296	4,653,791	4,146,505	8,155,006	4,100,778	4,054,228	417,049	8-Soybeans, corn, dairy, hogs (64%)	
MO	4,872,297	2,409,320	2,462,977	5,563,617	2,768,474	2,795,143	278,066	13-Soybeans, cattle/calves, corn, hogs (65%)	
MS	3,438,212	1,504,067	1,934,145	3,476,300	1,469,913	2,006,387	169,861	23-Broilers, cotton, soybeans, aquaculture (72%)	
MT	1,999,449	1,202,522	796,927	2,063,342	1,071,848	991,494	230,918	33-Cattle/calves, wheat, barley, hay (87%)	
NC	7,896,970	3,465,592	4,431,378	8,301,809	3,608,171	4,693,638	87,764	7-Hogs, broilers, tobacco, greenhouse (67%)	
ND	3,429,192	2,890,564	538,628	3,312,959	2,702,197	610,762	361,549	25-Wheat, cattle/calves, sunflower, soybeans (64%)	
NE	9,210,797	3,933,302	5,277,495	10,092,232	4,550,182	5,542,050	454,598	4-Cattle/calves, corn, soybeans, hogs (88%)	
NH	169,003	96,595	72,408	166,070	96,733	69,337	889	48-Dairy, greenhouse, apples, cattle/calves (62%)	
NJ	802,803	607,145	195,658	776,311	596,189	180,122	3,629	39-Greenhouse, dairy, cranberries, green pepper (47%)	
NM	1,703,956	505,812	1,198,144	1,915,441	561,740	1,353,701	38,998	34-Cattle/calves, dairy, hay, chili pepper (80%)	
NV	286,587	132,440	154,147	310,008	129,884	180,124	2,096	47-Cattle/calves, hay, dairy, onions (82%)	
NY	3,031,231	980,734	2,050,497	2,895,699	1,036,861	1,858,838	39,633	28-Dairy, greenhouse, apples, cattle/calves (70%)	
OH	4,796,144	2,852,685	1,943,459	5,344,658	3,475,782	1,868,876	186,429	16-Soybeans, corn, dairy, greenhouse (64%)	
OK	3,519,072	1,104,894	2,414,178	4,368,998	1,307,947	3,061,051	205,601	18-Cattle/calves, wheat, hogs, broilers (75%)	
OR	2,904,132	2,246,324	657,808	3,112,982	2,373,439	739,543	63,429	27-Greenhouse, cattle/calves, hay, wheat (44%)	
PA	4,147,606	1,282,997	2,864,609	4,127,690	1,338,876	2,788,814	35,471	20-Dairy, greenhouse, cattle/calves, chicken eggs (62%)	
RI	83,961	72,657	11,304	82,849	73,616	9,233	122	49-Greenhouse, dairy, sweet corn, potatoes (72%)	
SC	1,616,342	868,674	747,668	1,695,240	898,262	796,978	43,044	35-Broilers, tobacco, greenhouse, cotton (51%)	
SD	3,508,617	1,874,645	1,633,972	4,237,050	2,417,031	1,820,019	268,113	19-Cattle/calves, corn, soybeans, wheat (74%)	
TN	2,405,062	1,405,718	999,344	2,291,672	1,286,707	1,004,965	76,209	30-Cattle/calves, soybeans, broilers, tobacco (50%)	
TX	12,959,924	5,139,187	7,820,737	13,460,836	5,276,901	8,183,935	648,567	2-Cattle/calves, cotton, greenhouse, dairy (69%)	
UT	871,817	227,751	644,066	952,959	238,069	714,890	20,095	37-Cattle/calves, dairy, hay, hogs (70%)	
VA	2,384,353	907,482	1,476,871	2,400,504	862,839	1,537,665	30,590	29-Broilers, cattle/calves, dairy, tobacco (52%)	
VT	531,850	99,101	432,749	512,612	96,830	415,782	3,093	42-Dairy, cattle/calves, greenhouse, hay (88%)	
WA	5,497,323	3,832,808	1,664,525	5,382,052	3,778,284	1,603,768	147,279	15-Apples, dairy, wheat, cattle/calves (53%)	
WI	6,030,423	1,731,895	4,298,528	5,756,477	1,686,063	4,070,414	176,572	12-Dairy, cattle/calves, corn, soybeans (77%)	
WV	388,297	79,472	308,825	394,104	70,587	323,517	5,675	46-Broilers, cattle/calves, dairy, turkeys (71%)	
WY	666,823	189,301	477,522	844,675	198,796	645,879	22,387	38-Cattle/calves, sugar beets, hay, sheep/lambs (83%)	
US	199,579,839	106,575,023	93,004,816	208,664,538	112,096,591	96,567,947	7,495,953	Cattle/calves, dairy prod, corn, soybeans (46%)	

Appendix table 3--Net farm income for States, 1996-97

State	1996			1997		
	Final agricultural output 1/	Net value added 2/	Net farm income 3/	Final agricultural output 1/	Net value added 2/	Net farm income 3/
1,000 dollars						
Alabama	3,845,414	1,472,011	1,095,529	3,936,142	1,640,117	1,284,191
Alaska	35,552	16,726	11,126	38,935	20,196	14,388
Arizona	2,298,103	1,087,608	701,464	2,359,494	1,026,996	609,613
Arkansas	6,570,879	2,902,755	2,066,026	6,383,849	2,750,089	1,856,631
California	25,263,053	11,835,754	5,891,511	26,793,312	11,953,535	5,790,885
Colorado	4,758,792	1,525,925	838,187	4,847,442	1,508,301	788,444
Connecticut	520,599	265,858	152,837	556,038	268,887	150,833
Delaware	850,532	186,314	114,819	841,190	167,276	95,544
Florida	6,527,861	3,108,314	1,829,930	6,499,492	3,136,306	1,839,087
Georgia	6,513,268	2,933,020	2,296,682	6,678,804	3,123,430	2,511,711
Hawaii	523,773	211,469	19,428	523,180	209,304	19,166
Idaho	3,770,630	1,588,979	825,005	3,611,913	1,320,324	524,288
Illinois	10,393,749	4,994,700	2,272,129	9,805,605	4,625,935	2,184,663
Indiana	6,166,063	2,494,403	1,203,730	6,238,067	2,633,623	1,365,618
Iowa	14,080,027	6,805,858	3,931,010	13,583,881	6,326,281	3,674,319
Kansas	9,081,480	3,290,711	1,881,776	9,622,132	3,308,058	1,789,172
Kentucky	4,015,170	1,807,417	1,109,114	4,477,070	2,168,804	1,501,356
Louisiana	2,582,398	1,244,755	746,534	2,385,836	1,097,909	583,064
Maine	551,124	196,246	86,469	531,297	134,492	21,741
Maryland	1,819,752	604,153	361,547	1,789,487	514,745	274,654
Massachusetts	552,308	279,062	162,207	604,484	308,585	186,606
Michigan	3,861,510	1,162,513	396,943	4,163,855	1,281,546	473,950
Minnesota	9,696,714	3,805,077	2,276,393	9,122,238	2,839,120	1,317,588
Mississippi	3,989,561	1,485,539	945,945	3,983,233	1,437,002	873,214
Missouri	5,981,112	2,257,074	1,190,364	6,138,796	2,428,460	1,403,806
Montana	2,191,950	903,086	348,976	2,294,746	886,621	323,102
Nebraska	11,219,331	5,195,204	3,378,298	10,508,585	3,906,137	2,084,535
Nevada	360,471	117,033	56,901	362,594	118,394	53,818
New Hampshire	189,806	84,678	51,254	190,220	78,662	44,108
New Jersey	935,816	450,375	260,634	899,229	373,627	172,720
New Mexico	1,830,548	651,632	354,897	2,022,721	704,808	381,646
New York	3,313,267	1,072,823	471,454	3,205,044	850,916	232,752
North Carolina	9,300,436	4,921,323	3,369,661	9,656,757	5,064,796	3,512,706
North Dakota	4,163,200	2,148,139	1,052,859	3,190,678	1,167,669	104,912
Ohio	5,715,974	2,350,175	1,344,464	6,341,999	2,987,194	1,928,115
Oklahoma	4,088,256	1,166,845	578,569	4,985,541	1,737,806	1,132,682
Oregon	3,768,323	1,700,729	537,489	3,828,408	1,620,419	442,652
Pennsylvania	4,670,404	1,566,931	943,735	4,558,772	1,232,922	594,412
Rhode Island	93,455	59,108	45,035	93,900	56,893	43,042
South Carolina	1,831,423	748,912	502,376	1,906,262	821,400	581,222
South Dakota	4,493,928	2,404,457	1,459,996	4,217,402	1,986,089	1,045,951
Tennessee	2,663,049	916,446	417,329	2,793,800	1,007,427	535,079
Texas	14,488,733	5,100,150	2,698,197	15,901,257	5,995,375	3,574,048
Utah	1,045,029	362,383	203,877	1,091,289	383,771	208,827
Vermont	573,799	211,410	135,950	575,337	194,153	115,941
Virginia	2,787,222	997,598	596,782	2,667,881	838,571	465,551
Washington	6,541,820	3,253,694	1,471,144	5,968,122	2,507,456	760,906
West Virginia	475,310	80,366	17,100	486,908	77,763	17,423
Wisconsin	6,594,368	1,997,548	578,972	6,486,679	1,590,584	199,949
Wyoming	866,448	256,241	69,356	1,021,310	336,509	133,378
United States	228,451,788	96,279,525	53,352,010	230,771,215	92,755,281	49,824,006

1/ Total value of all commodities and services produced in the sector.

2/ Final sector output less intermediate consumption outlays, net government transactions, capital consumption

3/ Net value-added less payments to factors of production and is residual returns to operators

Appendix table 4--State rankings for net farm income: total, per farming operation and per acre, 1997

R A N K	Total		Per Operation		Per Acre	
	State	Value (\$1000)	State	Value (\$1000)	State	Value (Dollars)
1	California	5,790,885	Arizona	81,282	Rhode Island	683
2	Iowa	3,674,319	California	68,939	Connecticut	397
3	Texas	3,574,048	North Carolina	61,626	North Carolina	390
4	North Carolina	3,512,706	Rhode Island	61,489	Massachusetts	327
5	Georgia	2,511,711	Georgia	58,412	Georgia	213
6	Illinois	2,184,663	Florida	45,977	New Jersey	208
7	Nebraska	2,084,535	Arkansas	43,685	California	193
8	Ohio	1,928,115	Delaware	39,810	Florida	179
9	Arkansas	1,856,631	Connecticut	38,675	Delaware	169
10	Florida	1,839,087	Nebraska	37,901	Alabama	132
11	Kansas	1,789,172	Iowa	37,493	Maryland	131
12	Kentucky	1,501,356	South Dakota	32,183	Ohio	128
13	Missouri	1,403,806	Colorado	32,181	Arkansas	125
14	Indiana	1,365,618	Massachusetts	30,098	South Carolina	116
15	Minnesota	1,317,588	Illinois	28,746	Iowa	111
16	Alabama	1,284,191	Alabama	28,538	Kentucky	108
17	Oklahoma	1,132,682	New Mexico	28,270	New Hampshire	103
18	South Dakota	1,045,951	Alaska	28,212	Indiana	86
19	Mississippi	873,214	Kansas	27,956	Vermont	86
20	Colorado	788,444	South Carolina	27,034	Illinois	78
21	Washington	760,906	Ohio	26,413	Pennsylvania	77
22	Arizona	609,613	Idaho	23,831	Mississippi	70
23	Pennsylvania	594,412	Indiana	22,026	Louisiana	69
24	Louisiana	583,064	Louisiana	22,002	Virginia	55
25	South Carolina	581,222	Nevada	21,527	Washington	48
26	Tennessee	535,079	Washington	21,136	Missouri	47
27	Idaho	524,288	Maryland	21,127	Tennessee	45
28	Michigan	473,950	Mississippi	20,307	Michigan	45
29	Virginia	465,551	Vermont	19,323	Nebraska	44
30	Oregon	442,652	New Hampshire	18,378	Minnesota	44
31	New Mexico	381,646	New Jersey	18,374	Idaho	39
32	Montana	323,102	Texas	17,434	Kansas	37
33	Maryland	274,654	Kentucky	17,061	Oklahoma	33
34	New York	232,752	Utah	15,584	New York	30
35	Utah	208,827	Oklahoma	15,516	Texas	28
36	Wisconsin	199,949	Minnesota	15,145	Oregon	25
37	Massachusetts	186,606	Wyoming	14,657	Colorado	24
38	New Jersey	172,720	Missouri	13,763	South Dakota	24
39	Connecticut	150,833	Montana	13,463	Utah	19
40	Wyoming	133,378	Pennsylvania	11,888	Arizona	17
41	Vermont	115,941	Oregon	11,804	Maine	16
42	North Dakota	104,912	Virginia	9,905	Alaska	16
43	Delaware	95,544	Michigan	9,293	Hawaii	12
44	Nevada	53,818	Tennessee	6,688	Wisconsin	12
45	New Hampshire	44,108	New York	6,465	New Mexico	9
46	Rhode Island	43,042	Hawaii	4,167	Nevada	6
47	Maine	21,741	North Dakota	3,440	Montana	5
48	Hawaii	19,166	Maine	2,978	West Virginia	5
49	West Virginia	17,423	Wisconsin	2,531	Wyoming	4
50	Alaska	14,388	West Virginia	871	North Dakota	3
	United States	49,824,006	United States	24,211	United States	51

Appendix table 5--United States: Number of farms, net value-added and net farm income by value of size class, 1997

	\$1,000,000 or more	\$500,000 - \$999,999	\$250,000 - \$499,999	\$100,000 - \$249,999	\$50,000 - \$99,999	\$20,000 - \$49,999	Less than \$20,000	Total US
Number of farms	18,767	34,764	82,984	207,058	187,831	270,183	1,257,323	2,058,910
					1,000 dollars			
Final crop output	24,255,691	12,780,896	16,331,333	43,130,603	8,241,602	5,213,157	2,544,704	112,497,986
Final animal output	33,513,024	13,276,495	13,413,098	17,880,603	9,408,312	4,305,890	4,402,090	96,199,511
Services and forestry	3,964,660	2,244,014	2,914,614	3,253,225	2,065,659	1,684,225	5,947,322	22,073,718
Final agricultural sector output	61,733,375	28,301,405	32,659,044	64,264,431	19,715,573	11,203,271	12,894,116	230,771,215
less: Intermediate consumption outlays	36,313,316	14,857,221	18,483,199	21,693,711	9,916,613	7,186,556	10,101,160	118,551,777
Farm origin	18,687,018	6,313,838	6,595,372	6,870,540	2,742,962	1,887,931	2,597,744	45,695,404
Manufactured inputs	5,533,133	3,772,012	5,494,583	6,693,655	3,049,673	2,131,901	2,289,517	28,964,474
Other intermediate expenses	12,093,166	4,771,371	6,393,244	8,129,516	4,123,979	3,166,725	5,213,899	43,891,899
plus: Net government transactions	-248,635	155,476	303,393	480,977	47,538	198,010	-880,699	56,061
Gross value added	25,171,424	13,599,660	14,479,238	43,051,697	9,846,497	4,214,725	1,912,257	112,275,499
less: Capital consumption	1,369,282	1,045,147	1,554,523	2,880,477	2,168,891	2,413,932	8,087,966	19,520,218
Net value added	23,802,141	12,554,513	12,924,715	40,171,220	7,677,607	1,800,794	-6,175,709	92,755,281
less: Factor payments	12,197,843	5,721,797	7,121,587	8,171,134	3,733,782	2,538,697	3,446,435	42,931,275
Employee compensation	7,571,049	2,335,773	2,370,676	1,888,439	880,738	479,034	484,798	16,010,508
Net rent received by nonoperator landlords	2,195,070	1,943,183	2,647,857	3,268,171	1,216,393	860,282	1,112,301	13,243,258
Real estate and non real estate interest	2,431,724	1,442,840	2,103,054	3,014,523	1,636,651	1,199,381	1,849,336	13,677,508
Net farm income	11,604,298	6,832,716	5,803,129	32,000,087	3,943,825	-737,904	-9,622,145	49,824,006

Appendix table 6--Net cash income from farming by size class, 1993-98 1/

Item	\$1,000,000 and over	\$500,000 to \$999,999	\$250,000 to \$499,999	\$100,000 to \$249,999	\$50,000 to \$99,999	\$20,000 to \$49,999	Less than \$20,000	All
Billion dollars								
Gross cash income								
1993	50.7	26.4	32.6	45.6	22.0	12.4	10.5	200.2
1994	52.3	25.5	29.5	43.3	22.2	13.1	12.3	198.3
1995	60.0	26.3	33.6	43.2	20.1	11.3	11.1	205.5
1996	62.6	33.3	42.8	41.8	16.3	10.8	10.2	217.8
1997	71.1	31.3	36.3	43.5	20.7	12.7	12.4	228.0
1998F	66.6	30.3	37.1	42.5	19.1	11.7	11.4	218.8
Crop receipts								
1993	21.0	10.4	16.3	21.8	9.4	5.0	3.7	87.6
1994	26.7	11.6	15.2	20.1	10.9	4.9	3.7	93.1
1995	25.3	14.4	19.9	21.6	10.7	5.6	3.7	101.1
1996	30.2	16.7	23.4	21.3	7.9	4.4	2.7	106.6
1997	33.4	15.4	19.6	24.0	9.9	6.5	3.3	112.1
1998F	30.7	15.1	20.1	21.2	9.1	5.4	3.2	104.8
Livestock receipts								
1993	28.1	13.9	12.4	17.3	9.2	5.4	3.9	90.2
1994	24.0	12.3	12.1	19.3	9.1	6.3	5.0	88.2
1995	32.5	10.3	11.2	17.7	7.5	4.1	3.7	87.0
1996	30.2	14.5	15.9	16.4	6.7	4.9	4.4	93.0
1997	34.7	14.1	14.0	15.8	8.6	4.6	4.9	96.6
1998F	33.3	13.1	13.9	17.1	7.9	4.6	4.4	94.4
Direct Government payments								
1993	0.6	1.2	2.5	4.5	2.1	1.2	1.2	13.4
1994	0.4	0.7	1.2	2.2	1.3	1.0	1.1	7.9
1995	0.3	0.7	1.4	2.1	0.8	0.8	1.2	7.3
1996	0.6	0.9	1.5	1.9	0.8	0.7	0.8	7.3
1997	0.5	0.8	1.4	2.1	1.0	1.0	0.9	7.5
1998F	0.5	0.9	1.6	2.3	1.0	0.9	1.1	8.3
Cash expenses								
1993	30.6	18.1	21.8	32.5	16.2	10.0	12.0	141.2
1994	33.0	19.1	22.7	33.1	15.1	9.7	14.9	147.6
1995	39.5	17.8	23.4	33.2	14.6	10.0	15.0	153.6
1996	39.3	24.3	30.7	32.0	12.4	8.9	13.8	161.4
1997	50.0	21.4	26.6	31.3	14.1	10.0	13.8	167.2
1998F	38.8	20.7	26.5	34.4	15.7	11.6	18.1	165.8
Net cash income								
1993	20.0	8.3	10.8	13.1	5.8	2.4	-1.5	59.0
1994	19.4	6.5	6.8	10.2	7.1	3.4	-2.6	50.7
1995	20.5	8.5	10.1	9.9	5.4	1.2	-3.8	51.8
1996	23.4	9.0	12.0	9.7	4.0	2.0	-3.6	56.4
1997	21.1	9.9	9.7	12.2	6.6	2.7	-1.4	60.8
1998F	27.8	9.5	10.7	8.2	3.4	0.1	-6.7	53.0

F = Forecast. Numbers are rounded.

1/ Based on U.S. data forecasts completed in August 1998. Figures for 1998 distributed by a three year average of the values from 1995-97.

For 1993-97, U.S. figures are distributed by data from the FCRS or ARMS.

Appendix table 7--Farm income for selected types of farms, 1993-98 1/

Item	Cash Grain 2/	Cotton	Total crops	Cattle	Hogs	Dairy	Total Livestock
Billion dollars							
Gross cash income							
1993	39.7	5.9	96.5	41.8	10.8	24.0	103.7
1994	43.2	8.2	104.1	32.5	9.3	24.6	94.3
1995	47.5	6.6	107.4	36.1	10.1	23.3	98.1
1996	55.0	7.1	120.9	27.7	11.4	26.1	96.9
1997	58.7	6.1	125.9	34.5	11.8	23.8	102.1
1998F	50.8	6.0	117.4	33.9	9.4	25.9	101.4
Crop receipts							
1993	29.3	4.3	79.0	4.6	1.9	1.2	8.6
1994	33.6	7.2	86.8	2.9	1.0	1.2	6.3
1995	39.2	6.0	93.3	3.3	1.5	1.3	7.8
1996	43.4	6.2	101.1	2.5	0.9	1.0	5.4
1997	46.5	5.2	106.8	2.3	1.0	0.9	5.3
1998F	39.5	5.1	98.9	2.5	1.1	1.0	5.8
Livestock receipts							
1993	2.5	0.0	3.7	33.3	7.9	21.4	86.4
1994	4.7	0.1	6.7	27.0	7.5	22.4	81.5
1995	3.2	0.1	4.7	28.6	8.1	21.2	82.4
1996	5.2	0.1	8.6	22.7	10.1	24.0	84.4
1997	6.0	0.1	7.8	28.1	10.3	22.1	88.7
1998F	4.7	0.1	6.9	27.6	7.8	23.9	87.4
Direct Government payments							
1993	6.3	1.1	9.9	2.0	0.6	0.7	3.5
1994	3.5	0.6	6.1	0.9	0.2	0.3	1.8
1995	3.7	0.2	5.6	0.8	0.2	0.3	1.6
1996	4.0	0.4	6.0	0.8	0.1	0.3	1.3
1997	4.2	0.4	6.1	0.8	0.1	0.3	1.4
1998F	4.5	0.4	6.6	0.9	0.2	0.3	1.6
Cash expenses							
1993	29.8	4.2	68.4	31.1	8.1	19.5	72.9
1994	32.6	4.9	76.1	23.2	8.6	21.6	71.5
1995	33.6	4.6	78.2	29.0	7.5	20.9	75.4
1996	44.9	5.4	92.0	24.0	6.4	21.5	69.4
1997	42.7	5.2	96.3	26.3	6.6	21.2	70.9
1998F	41.5	5.3	92.3	27.1	7.0	21.7	73.5
Net cash income							
1993	9.9	1.7	28.1	10.7	2.7	4.5	30.9
1994	10.6	3.3	27.9	9.2	0.7	3.0	22.8
1995	13.9	2.0	29.2	7.1	2.6	2.4	22.7
1996	10.1	1.7	28.9	3.7	5.1	4.7	27.5
1997	16.0	0.9	29.6	8.2	5.2	2.6	31.2
1998F	9.2	0.7	25.1	6.7	2.5	4.3	27.9

F = forecast. Numbers are rounded.

1/ Farm types are defined as those with 50 percent of more of the value of production accounted for by ■ specific commodity or commodity group.

2/ Includes farms earning at least half of their receipts from wheat, rice, corn, oats, barley, sorghum, soybeans, beans, and flax.

Appendix table 8--Farm business balance sheet

	1993	1994	1995	1996	1997	1998F
Billion dollars						
Farm assets	910.7	943.0	985.4	1034.9	1083.0	1129.5
Real estate	678.3	712.4	761.3	805.4	852.9	895.6
Livestock and poultry	72.8	67.9	58.1	59.4	58.5	57.0
Machinery and equipment	86.7	87.9	86.9	89.0	90.0	91.0
Crops stored	23.3	23.1	27.2	30.6	28.0	30.0
Purchased inputs	3.8	5.0	3.4	4.4	4.6	5.0
Financial assets	46.5	47.9	49.0	48.9	49.0	50.0
Farm debt	142.2	147.1	150.8	156.2	165.5	172.2
Real estate	76.3	78.0	79.6	81.9	85.6	88.7
Nonreal estate	65.9	69.1	71.5	74.2	79.9	83.5
Farm equity	768.5	795.9	834.6	878.7	917.5	957.2

Appendix table 9--Farm sector rates of return

	1993	1994	1995	1996	1997	1998
Percent						
Rate of return on assets	3.0	3.7	1.7	3.8	3.1	3.1
Real capita gains on assets	2.3	1.3	3.5	2.0	2.2	2.6
Total real return on assets	5.4	5.0	5.2	5.8	5.3	5.8
Average interest rate paid on debt	7.4	7.9	8.3	8.2	8.0	7.6
Real capital gains on debt	2.3	2.4	2.0	3.0	2.9	1.8
Real cost of debt	5.2	5.5	6.3	5.2	5.0	5.8
Rate of return on equity	2.2	2.9	0.5	3.0	2.1	2.3
Real capita gains on equity	3.2	2.0	4.5	2.7	2.9	3.3
Total real return on equity	5.4	4.9	5.0	5.7	5.0	5.5
Real net return on assets financed by debt	0.2	-0.5	-1.1	0.6	0.2	0.0

Appendix table 10--Farm financial measure

	1993	1994	1995	1996	1997	1998
Ratio						
Liquidity ratios:						
Farm business debt service coverage	2.55	2.16	2.12	2.21	2.30	2.72
Debt servicing	0.14	0.14	0.15	0.14	0.14	0.09
Time interest earned ratio	5.55	5.66	4.24	5.55	5.15	4.60
Solvency ratios:						
Debt/asset	15.6	15.6	15.3	15.1	15.3	15.3
Debt/equity	18.5	18.5	18.1	17.8	18.1	18.0
Profitability ratios:						
Return on equity	2.2	2.9	0.5	3.0	2.1	2.3
Return on assets	3.0	3.7	1.7	3.8	3.1	3.1
Financial efficiency ratios:						
Gross ratio	70.6	74.4	76.2	74.1	73.3	75.8
Interest to gross cash farm income	5.2	5.7	6.1	5.9	5.8	6.0
Asset turnover	22.4	21.4	21.2	21.6	21.5	19.8
Debt burden ratio (net cash income plus interest/farm debt)	47.5	49.3	42.8	45.1	46.0	39.1

Appendix table 11a--Corn production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States		Corn Belt		Southeast		Lake States		Plains States	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production (excluding direct Government payments):										
Corn grain	366.46	328.28	390.73	349.00	368.47	276.48	304.47	303.97	367.91	311.18
Corn silage	3.47	3.77	1.95	2.01	2.06	2.29	10.48	11.96	0.64	0.85
Total, gross value of production	369.93	332.05	392.68	351.01	370.53	278.77	314.95	315.93	368.55	312.03
Cash expenses:										
Seed	26.65	28.71	27.51	29.15	21.89	22.48	26.76	30.36	25.47	27.32
Fertilizer, lime, and gypsum	47.19	46.37	53.36	52.74	61.86	60.50	39.53	37.76	38.76	38.17
Chemicals	27.42	26.87	29.33	28.69	27.13	25.97	27.83	27.45	23.08	22.68
Custom operations 1/	11.30	11.30	11.87	11.58	9.26	9.23	9.08	9.52	12.39	12.48
Fuel, lube, and electricity	24.43	24.55	21.92	21.82	19.56	18.61	22.57	23.28	32.14	32.18
Repairs	18.81	19.28	16.54	16.81	17.53	17.83	18.14	18.92	24.41	24.98
Hired labor	2.77	3.00	2.09	2.32	6.63	6.88	2.95	3.14	3.45	3.77
Other variable cash expenses 2/	0.30	0.32	0.00	0.00	0.00	0.00	0.00	0.00	1.26	1.32
Total, variable cash expenses	158.87	160.40	162.62	163.11	163.86	161.50	146.86	150.43	160.96	162.90
General farm overhead	10.07	9.55	10.01	9.51	8.68	8.28	12.61	11.97	8.14	7.80
Taxes and insurance	23.15	22.22	23.89	22.97	12.09	11.22	26.41	25.77	20.35	19.26
Interest	19.09	15.59	18.74	15.29	12.09	9.88	19.25	15.56	20.77	17.08
Total, fixed cash expenses	52.31	47.36	52.64	47.77	32.86	29.38	58.27	53.30	49.26	44.14
Total, cash expenses	211.18	207.76	215.26	210.88	196.72	190.88	205.13	203.73	210.22	207.04
Gross value of production less cash expenses	158.75	124.29	177.42	140.13	173.81	87.89	109.82	112.20	158.33	104.99
Harvest-period price (dollars/bu.)	2.82	2.52	2.81	2.54	3.31	2.70	2.68	2.45	2.87	2.50
Yield (bu./planted acre)	129.95	130.27	139.05	137.40	111.32	102.40	113.61	124.07	128.19	124.47

Appendix table 11b--Corn production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States		Corn Belt		Southeast		Lake States		Plains States	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production (excluding direct Government payments):										
Corn grain	366.46	328.28	390.73	349.00	368.47	276.48	304.47	303.97	367.91	311.18
Corn silage	3.47	3.77	1.95	2.01	2.06	2.29	10.48	11.96	0.64	0.85
Total, gross value of production	369.93	332.05	392.68	351.01	370.53	278.77	314.95	315.93	368.55	312.03
Economic (full ownership) costs:										
Variable cash expenses	158.87	160.40	162.62	163.11	163.86	161.50	146.86	150.43	160.96	162.90
General farm overhead	10.07	9.55	10.01	9.51	8.68	8.28	12.61	11.97	8.14	7.80
Taxes and insurance	23.15	22.22	23.89	22.97	12.09	11.22	26.41	25.77	20.35	19.26
Capital replacement	48.59	49.72	46.26	47.13	51.02	51.85	48.76	50.80	52.97	53.96
Operating capital	4.07	4.16	4.22	4.23	4.13	4.18	3.72	3.89	4.08	4.22
Other nonland capital	12.64	13.14	11.80	12.20	12.96	13.38	12.99	13.76	14.05	14.54
Land	86.05	75.18	103.06	90.85	49.72	53.11	54.02	53.94	84.32	63.10
Unpaid labor	14.85	16.11	14.68	16.30	16.53	17.21	18.41	19.41	11.77	12.81
Total, economic costs	358.29	350.48	376.54	366.30	318.99	320.73	323.78	329.97	356.64	338.59
Residual returns to management and risk	11.64	-18.43	16.14	-15.29	51.54	-41.96	-8.83	-14.04	11.91	-26.57
Harvest-period price (dollars/bu.)	2.82	2.52	2.81	2.54	3.31	2.70	2.68	2.45	2.87	2.50
Yield (bu./planted acre)	129.95	130.27	139.05	137.40	111.32	102.40	113.61	124.07	128.19	124.47

1/ Cost of custom operations, technical services and commercial drying. 2/ Cost of purchased irrigation water.

Appendix table 12a--Soybean production cash costs and returns, 1996-97

Item	United States			North Central		Northern Plains		Southeast		Delta	
	1996	1997		1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production:											
Soybeans	256.36	278.80		265.55	297.83	254.69	251.37	214.76	236.65	232.47	218.65
Total, gross value of production	256.36	278.80		265.55	297.83	254.69	251.37	214.76	236.65	232.47	218.65
Cash expenses:											
Seed	15.01	19.66		16.11	20.12	13.43	18.86	12.19	17.49	11.43	19.07
Fertilizer, lime, and gypsum	10.45	8.09		9.72	8.03	3.66	4.85	26.85	18.53	6.33	6.91
Chemicals	24.95	28.21		26.16	28.33	19.95	28.32	23.50	29.43	24.16	26.60
Custom operations 1/	3.65	5.90		4.04	6.29	2.41	5.20	2.38	3.85	3.88	5.52
Fuel, tube, and electricity	9.45	6.35		8.22	5.50	12.51	8.63	10.55	4.99	14.06	9.47
Repairs	10.04	10.57		9.24	9.68	11.03	11.66	11.65	9.46	13.51	15.45
Hired labor	6.40	1.38		5.02	0.91	5.66	1.10	11.76	1.81	13.00	4.49
Other variable cash expenses 2/	0.05	0.05		0.03	0.00	0.22	0.32	0.00	0.00	0.00	0.00
Total, variable cash expenses	80.00	80.21		78.54	78.86	68.87	78.94	98.88	85.56	86.37	87.51
General farm overhead	11.44	9.97		12.59	10.46	9.51	10.05	7.96	7.78	8.83	8.03
Taxes and insurance	19.71	20.94		22.66	22.78	15.99	20.75	12.06	15.69	9.35	12.49
Interest	15.65	14.47		17.79	16.05	14.23	13.51	7.30	9.92	9.80	8.29
Total, fixed cash expenses	46.80	45.38		53.04	49.29	39.73	44.31	27.32	33.39	27.98	28.81
Total, cash expenses	126.80	125.59		131.58	128.15	108.60	123.25	126.20	118.95	114.35	116.32
Gross value of production less cash expenses	129.56	153.21		133.97	169.68	146.09	128.12	88.56	117.70	118.12	102.33
Harvest-period price (dollars/bu.)	6.91	6.54		6.91	6.51	6.72	6.30	6.95	6.95	7.26	6.97
Yield (bu./planted acre)	37.10	42.63		38.43	45.75	37.90	39.90	30.90	34.05	32.02	31.37

Appendix table 12b--Soybean production economic costs and returns, 1996-97

Item	United States			North Central		Northern Plains		Southeast		Delta	
	1996	1997		1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production:											
Soybeans	256.36	278.80		265.55	297.83	254.69	251.37	214.76	236.65	232.47	218.65
Total, gross value of production	256.36	278.80		265.55	297.83	254.69	251.37	214.76	236.65	232.47	218.65
Economic (full ownership) costs:											
Variable cash expenses	80.00	80.21		78.54	78.86	68.87	78.94	98.88	85.56	86.37	87.51
General farm overhead	11.44	9.97		12.59	10.46	9.51	10.05	7.96	7.78	8.83	8.03
Taxes and insurance	19.71	20.94		22.66	22.78	15.99	20.75	12.06	15.69	9.35	12.49
Capital replacement	21.88	34.40		19.84	33.14	28.77	33.47	22.26	34.65	28.39	43.48
Operating capital	2.04	2.08		2.00	2.04	1.75	2.04	2.51	2.22	2.20	2.27
Other nonland capital	12.13	9.71		11.78	9.44	13.79	9.39	11.42	9.38	13.53	12.07
Land	65.63	76.44		71.53	86.82	69.28	63.36	37.10	44.17	44.29	46.26
Unpaid labor	20.94	5.60		22.25	6.04	21.70	6.22	16.63	4.10	13.60	2.86
Total, economic costs	233.77	239.35		241.19	249.58	229.66	224.22	208.82	203.55	206.56	214.97
Residual returns to management and risk	22.59	39.45		24.36	48.25	25.03	27.15	5.94	33.10	25.91	3.68
Harvest-period price (dollars/bu.)	6.91	6.54		6.91	6.51	6.72	6.30	6.95	6.95	7.26	6.97
Yield (bu./planted acre)	37.10	42.63		38.43	45.75	37.90	39.90	30.90	34.05	32.02	31.37

1/ Cost of custom operations and technical services. 2/ Cost of purchased irrigation water.

Appendix table 13a--Wheat production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States			North Central			Southeast			Northern Plains			Central and Southern Plains			Pacific		
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre																		
Gross value of production (excluding direct Government payments):																		
Wheat	146.94	125.29	141.90	195.24	219.66	177.18	143.56	93.61	105.09	114.58	332.18	245.52						
Wheat straw	5.35	5.53	33.59	39.57	4.55	5.56	0.60	0.74	4.43	4.71	2.08	2.22						
Total, gross value of production	152.29	130.82	175.49	234.81	224.21	182.74	144.16	94.35	109.52	119.29	334.26	247.74						
Cash expenses:																		
Seed	9.26	9.02	16.59	18.91	14.71	18.02	8.93	7.64	6.79	7.24	11.94	11.93						
Fertilizer, lime, and gypsum	21.11	19.85	45.32	43.76	38.21	36.80	15.63	14.85	16.72	16.46	34.74	32.53						
Chemicals	6.23	6.32	0.94	0.93	7.42	7.18	8.27	8.33	3.06	3.14	16.00	15.95						
Custom operations	5.35	6.33	4.04	4.93	7.35	7.17	2.72	2.64	7.79	10.03	7.90	7.71						
Fuel, tube, and electricity	9.71	10.20	5.77	6.50	6.51	6.44	7.12	6.74	10.95	12.25	22.34	21.94						
Repairs	13.26	13.37	9.45	9.81	11.57	10.58	14.09	12.77	12.03	13.57	19.60	19.55						
Hired labor	4.69	5.00	2.06	2.15	7.92	7.71	2.39	2.52	5.18	5.61	15.35	15.67						
Other variable cash expenses 1/	0.40	0.40	0.78	0.81	0.28	0.36	0.03	0.03	0.07	0.07	3.38	3.36						
Total, variable cash expenses	70.01	70.49	84.95	87.80	93.97	94.26	59.18	55.52	62.59	68.37	131.25	128.64						
General farm overhead	5.80	6.78	8.64	10.23	4.31	4.95	4.54	5.35	5.60	6.59	10.37	12.16						
Taxes and insurance	10.02	10.70	15.38	16.49	11.68	13.30	8.67	9.61	8.36	8.90	17.68	18.38						
Interest	9.63	9.68	9.22	9.35	5.29	5.56	9.39	9.47	9.54	9.49	13.31	13.38						
Total, fixed cash expenses	25.45	27.16	33.24	36.07	21.28	23.81	22.60	24.43	23.50	24.98	41.36	43.92						
Total, cash expenses	95.46	97.65	118.19	123.87	115.25	118.07	81.78	79.95	86.09	93.35	172.61	172.56						
Gross value of production less cash expenses	56.83	33.17	57.30	110.94	108.96	64.67	62.38	14.40	23.43	25.94	161.65	75.18						
Harvest-period price (dollars/bu.)	4.84	3.49	4.16	3.15	4.41	3.66	4.86	3.81	5.21	3.27	4.81	3.67						
Yield (bu./planted acre)	30.36	35.90	34.11	61.98	49.81	48.41	29.54	24.57	20.17	35.04	69.06	66.90						

Appendix table 13b--Wheat production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States			North Central			Southeast			Northern Plains			Central and Southern Plains			Pacific		
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre																		
Gross value of production (excluding direct Government payments):																		
Wheat	146.94	125.29	141.90	195.24	219.66	177.18	143.56	93.61	105.09	114.58	332.18	245.52						
Wheat straw	5.35	5.53	33.59	39.57	4.55	5.56	0.60	0.74	4.43	4.71	2.08	2.22						
Total, gross value of production	152.29	130.82	175.49	234.81	224.21	182.74	144.16	94.35	109.52	119.29	334.26	247.74						
Economic (full ownership) costs:																		
Variable cash expenses	70.01	70.49	84.95	87.80	93.97	94.26	59.18	55.52	62.59	68.37	131.25	128.64						
General farm overhead	5.80	6.78	8.64	10.23	4.31	4.95	4.54	5.35	5.60	6.59	10.37	12.16						
Taxes and insurance	10.02	10.70	15.38	16.49	11.68	13.30	8.67	9.61	8.36	8.90	17.68	18.38						
Capital replacement	24.95	24.98	21.00	21.79	22.78	20.60	27.29	24.73	20.65	23.39	38.21	38.04						
Operating capital	1.78	1.83	2.16	2.27	2.39	2.44	1.51	1.44	1.59	1.77	3.34	3.33						
Other nonland capital	12.16	12.40	11.30	12.07	11.93	11.20	14.49	13.57	9.60	11.15	13.40	13.32						
Land	46.40	43.06	44.38	54.23	25.90	21.85	46.35	39.10	34.36	37.72	111.33	84.95						
Unpaid labor	9.36	10.03	9.38	10.28	6.75	7.44	6.34	6.73	10.66	11.44	19.20	20.01						
Total, economic costs	180.48	180.27	197.19	215.16	179.71	176.04	168.37	156.05	153.41	169.33	344.78	318.83						
Residual returns to management and risk	-28.19	-49.45	-21.70	19.65	44.50	6.70	-24.21	-61.70	-43.89	-50.04	-10.52	-71.09						
Harvest-period price (dollars/bu.)	4.84	3.49	4.16	3.15	4.41	3.66	4.86	3.81	5.21	3.27	4.81	3.67						
Yield (bu./planted acre)	30.36	35.90	34.11	61.98	49.81	48.41	29.54	24.57	20.17	35.04	69.06	66.90						

1/ Cost of purchased irrigation water and baling.

Appendix table 14a--Cotton production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States			Southeast		Delta		Southern Plains		Southwest	
	1996	1997		1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production (excluding direct Government payments):											
Cotton	383.84	402.75		536.61	453.50	566.19	589.08	189.19	247.45	634.70	681.40
Cottonseed	70.73	62.83		93.97	78.03	72.40	60.72	38.99	39.30	151.51	141.14
Total, gross value of production	454.57	465.58		630.58	531.53	638.59	649.80	228.18	286.75	786.21	822.54
Cash expenses:											
Seed	16.75	15.99		10.14	10.16	9.36	9.74	23.83	21.04	15.99	16.80
Fertilizer, lime, and gypsum	46.53	43.73		56.61	52.82	57.44	52.75	29.34	28.25	81.67	79.13
Chemicals	50.98	57.26		82.36	83.49	88.03	106.80	20.76	23.39	57.71	59.47
Custom operations 1/	20.92	20.64		16.98	15.07	24.78	24.57	9.44	9.67	69.83	68.93
Fuel, lube, and electricity	35.67	35.24		24.76	24.77	30.17	30.29	39.33	38.26	48.98	47.67
Repairs	29.18	30.11		35.68	36.82	43.25	44.63	35.68	36.82	41.64	42.97
Hired labor	41.86	43.96		23.75	25.56	50.75	54.41	23.69	24.31	124.45	128.96
Ginning	50.84	51.27		57.88	58.37	63.37	63.91	31.68	31.95	98.59	99.43
Other variable cash expenses 2/	6.05	6.21		.00	.00	.01	.01	.29	.29	54.34	55.77
Total, variable cash expenses	298.78	304.41		308.16	307.06	367.16	387.11	214.04	213.98	593.20	599.13
General farm overhead	16.52	14.34		12.80	11.11	17.08	14.83	14.15	12.28	31.18	27.08
Taxes and insurance	23.31	21.31		19.08	18.20	22.50	20.26	18.92	17.43	46.52	49.39
Interest	19.60	18.47		23.32	21.98	25.87	24.38	10.38	9.78	41.51	39.12
Total, fixed cash expenses	59.43	54.12		55.20	51.29	65.45	59.47	43.45	39.49	122.08	112.72
Total, cash expenses	358.21	358.53		363.36	358.35	432.61	446.58	257.49	253.47	715.28	711.85
Gross value of production less cash expenses	96.36	107.05		267.22	173.18	205.98	203.22	-29.31	33.28	70.93	110.69
Harvest-period price (dollars/lb.)	.65	.64		.75	.72	.72	.68	.60	.61	.63	.65
Yield (lbs./planted acre)	590.53	629.30		715.48	629.86	786.38	866.30	315.31	405.66	1,007.46	1,048.30

Appendix table 14b--Cotton production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States			Southeast		Delta		Southern Plains		Southwest	
	1996	1997		1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production (excluding direct Government payments):											
Cotton	383.84	402.75		536.61	453.50	566.19	589.08	189.19	247.45	634.70	681.40
Cottonseed	70.73	62.83		93.97	78.03	72.40	60.72	38.99	39.30	151.51	141.14
Total, gross value of production	454.57	465.58		630.58	531.53	638.59	649.80	228.18	286.75	786.21	822.54
Economic (full ownership) costs:											
Variable cash expenses	298.78	304.41		308.16	307.06	367.16	387.11	214.04	213.98	593.20	599.13
General farm overhead	16.52	14.34		12.80	11.11	17.08	14.83	14.15	12.28	31.18	27.08
Taxes and insurance	23.31	21.31		19.08	18.20	22.50	20.26	18.92	17.43	49.39	46.52
Capital replacement	55.93	57.71		67.70	69.87	79.48	82.02	32.19	35.17	83.83	86.51
Operating capital	7.60	7.88		7.84	7.95	8.51	10.03	5.45	5.54	15.10	15.52
Other nonland capital	20.06	17.55		22.96	20.09	23.76	20.79	14.93	13.06	30.65	26.81
Land 3/	47.80	46.79		36.02	35.06	81.02	79.33	27.33	26.83	81.04	78.84
Unpaid labor	30.58	31.03		24.13	25.96	23.67	25.37	29.53	30.31	48.77	50.53
Total, economic costs	500.58	501.02		498.69	495.30	623.18	639.74	356.54	354.60	933.16	930.94
Residual returns to management and risk	-46.01	-35.44		131.89	36.23	15.41	10.06	-128.36	-67.85	-146.95	-108.41
Harvest-period price (dollars/lb.)	.65	.64		.75	.72	.72	.68	.60	.61	.63	.65
Yield (lbs./planted acre)	590.53	629.30		715.48	629.86	786.38	866.30	315.31	405.66	1,007.46	1,048.30

1/ Cost of custom operations and technical services. 2/ Cost of purchased irrigation water. 3/ Land costs on planted row basis.

Appendix table 15a--Rice production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States			Arkansas (non-Delta)		Mississippi River Delta		Gulf Coast 1/		California	
	1996	1997		1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre											
Gross value of production (excluding direct Government payments):											
Rice	592.70	591.36		630.01	596.92	588.32	575.17	543.08	546.11	744.96	704.93
Total, gross value of production	592.70	591.36		630.01	596.92	588.32	575.17	543.08	546.11	744.96	704.93
Cash expenses:											
Seed	22.38	24.15		20.67	22.47	20.36	23.40	22.92	25.53	27.27	26.20
Fertilizer	56.10	52.59		52.09	47.33	50.14	46.81	58.43	55.05	67.61	65.98
Chemicals	67.86	68.32		64.74	65.18	66.30	66.74	62.44	62.86	83.20	83.76
Custom operations 2/	45.57	45.80		34.45	34.53	34.21	34.45	40.59	40.15	87.16	88.62
Fuel, lube, and electricity	73.03	68.14		77.04	67.32	77.36	71.61	69.03	62.10	65.96	73.88
Repairs	28.69	28.83		27.91	28.37	25.54	25.90	27.77	26.80	35.37	36.25
Hired labor	35.81	38.01		32.29	34.27	31.52	33.45	37.50	39.80	45.23	48.00
Drying 3/	30.14	29.72		27.27	25.07	12.76	11.95	29.80	27.31	57.65	63.89
Other variable cash expenses 4/	12.03	12.23		1.12	1.14	0.01	0.01	21.31	21.69	33.82	34.40
Total, variable cash expenses	371.61	367.79		337.58	325.68	318.20	314.32	369.79	361.29	503.27	520.98
General farm overhead	28.00	32.90		16.89	19.84	15.44	18.14	21.20	24.91	73.66	86.55
Taxes and insurance	31.88	30.55		25.53	24.24	21.56	20.61	28.20	26.64	61.63	60.06
Interest	26.42	26.57		25.98	26.13	22.73	22.86	23.72	23.86	35.69	35.89
Total, fixed cash expenses	86.30	90.02		68.40	70.21	59.73	61.61	73.12	75.41	170.98	182.50
Total, cash expenses	457.91	457.81		405.98	395.89	377.93	375.93	442.91	436.70	674.25	703.48
Gross value of production less cash expenses	134.79	133.55		224.03	201.03	210.39	199.24	100.17	109.41	70.71	1.45
Harvest-period price (dollars/cwt.)	9.75	10.10		9.85	10.15	9.75	10.18	9.75	10.66	9.85	8.41
Yield (cwt./planted acre)	60.79	58.55		63.96	58.81	60.34	56.50	55.70	51.23	75.63	83.82

Appendix table 15b--Rice production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States			Arkansas (non-Delta)		Mississippi River Delta		Gulf Coast 1/		California	
	1996	1997		1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre											
Gross value of production (excluding direct Government payments):											
Rice	592.70	591.36		630.01	596.92	588.32	575.17	543.08	546.11	744.96	704.93
Total, gross value of production	592.70	591.36		630.01	596.92	588.32	575.17	543.08	546.11	744.96	704.93
Economic (full ownership) costs:											
Variable cash expenses	371.61	367.79		337.58	325.68	318.20	314.32	369.79	361.29	503.27	520.98
General farm overhead	28.00	32.90		16.89	19.84	15.44	18.14	21.20	24.91	73.66	86.55
Taxes and insurance	31.88	30.55		25.53	24.24	21.56	20.61	28.20	26.64	61.63	60.06
Capital replacement	59.25	59.57		56.23	57.16	51.34	52.06	58.99	57.07	75.04	76.92
Operating capital	9.47	9.54		8.59	8.44	8.10	8.14	9.46	9.41	12.81	13.49
Other nonland capital	19.98	21.25		21.43	22.79	19.11	20.32	19.84	21.10	18.62	19.80
Land	125.26	134.62		114.31	122.48	110.97	119.50	86.91	94.15	217.60	233.15
Unpaid labor	26.89	28.53		28.64	30.40	17.57	19.19	32.23	34.02	27.82	29.06
Total, economic costs	672.34	684.75		609.20	611.03	562.29	572.28	626.62	628.59	990.45	1040.01
Residual returns to management and risk	-79.64	-93.40		20.81	-14.11	26.03	2.89	-83.55	-82.48	-245.49	-335.08
Harvest-period price (dollars/cwt.)	9.75	10.10		9.85	10.15	9.75	10.18	9.75	10.66	9.85	8.41
Yield (cwt./planted acre)	60.79	58.55		63.96	58.81	60.34	56.50	55.70	51.23	75.63	83.82

1/ Gulf Coast includes Southwest Louisiana, Upper and Lower Texas Coast. 2/ Cost of custom operations and technical services. 3/ Commercial drying only, beginning in 1992.

4/ Cost of purchased irrigation water.

Appendix table 16a--Grain sorghum production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States		Central Plains		Southern Plains	
	1996	1997	1996	1997	1996	1997
Dollars per planted acre						
Gross value of production (excluding direct Government payments):						
Sorghum	170.91	153.91	193.37	172.18	141.80	130.69
Total, gross value of production	170.91	153.91	193.37	172.18	141.80	130.69
Cash expenses:						
Seed	6.00	6.57	5.07	5.53	7.21	7.88
Fertilizer, lime, and gypsum	17.99	17.62	18.06	17.99	17.90	17.16
Chemicals	12.28	11.71	14.66	13.97	9.21	8.86
Custom operations 1/	5.26	5.62	4.69	4.73	5.99	6.73
Fuel, lube, and electricity	17.95	18.48	12.31	11.85	25.24	26.82
Repairs	16.95	17.65	16.77	16.95	17.18	18.53
Hired labor	5.42	5.68	4.16	4.47	7.03	7.21
Other variable cash expenses 2/	0.00	0.00	0.00	0.00	0.00	0.00
Total, variable cash expenses	81.85	83.33	75.72	75.49	89.76	93.19
General farm overhead	8.88	8.93	10.07	10.16	7.35	7.38
Taxes and insurance	9.27	8.65	10.25	9.61	8.00	7.44
Interest	9.61	8.32	11.57	10.03	7.07	6.17
Total, fixed cash expenses	27.76	25.90	31.89	29.80	22.42	20.99
Total, cash expenses	109.61	109.23	107.61	105.29	112.18	114.18
Gross value of production less cash expenses	61.30	44.68	85.76	66.89	29.62	16.51
Harvest-period price (dollars/bu.)	2.70	2.29	2.44	2.21	3.32	2.43
Yield (bu./planted acre)	63.30	67.21	79.25	77.91	42.71	53.78

Appendix table 16b--Grain sorghum production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States		Central Plains		Southern Plains	
	1996	1997	1996	1997	1996	1997
Dollars per planted acre						
Gross value of production (excluding direct Government payments):						
Sorghum	170.91	153.91	193.37	172.18	141.80	130.69
Total, gross value of production	170.91	153.91	193.37	172.18	141.80	130.69
Economic (full ownership) costs:						
Variable cash expenses	81.85	83.33	75.72	75.49	89.76	93.19
General farm overhead	8.88	8.93	10.07	10.16	7.35	7.38
Taxes and insurance	9.27	8.65	10.25	9.61	8.00	7.44
Capital replacement	31.13	32.43	31.28	31.65	30.93	33.41
Operating capital	2.08	2.16	1.93	1.95	2.28	2.41
Other nonland capital	12.98	13.89	13.12	13.64	12.79	14.20
Land	25.25	23.16	30.52	27.39	18.44	17.84
Unpaid labor	9.89	10.39	9.62	10.31	10.24	10.49
Total, economic costs	181.33	182.94	182.51	180.20	179.79	186.36
Residual returns to management and risk	-10.42	-29.03	10.86	-8.02	-37.99	-55.67
Harvest-period price (dollars/bu.)	2.70	2.29	2.44	2.21	3.32	2.43
Yield (bu./planted acre)	63.30	67.21	79.25	77.91	42.71	53.78

1/ Cost of custom operations and technical services. 2/ Cost of purchased irrigation water.

Appendix table 17a--Barley production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States		Northeast		Northern Plains		Northwest		Southwest	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production (excluding direct Government payments):										
Barley	161.72	121.16	205.75	187.33	139.00	91.83	222.41	200.93	198.69	138.86
Barley straw	4.21	5.22	53.21	60.53	1.89	2.67	3.80	4.52	5.51	6.91
Total, gross value of production	165.93	126.38	258.96	247.86	140.89	94.50	226.21	205.45	204.20	145.77
Cash expenses:										
Seed	9.50	8.96	11.77	15.57	7.63	6.77	14.65	13.60	12.49	13.71
Fertilizer, lime, and gypsum	21.06	20.75	40.91	40.32	17.11	16.68	33.24	32.13	16.81	16.70
Chemicals	9.50	9.81	3.46	3.56	7.86	7.97	17.05	17.33	7.26	7.72
Custom operations	4.70	4.70	4.81	4.92	3.41	3.39	7.04	7.07	10.77	10.83
Fuel, lube, and electricity	13.15	13.34	8.59	8.75	8.85	8.59	26.64	27.32	19.86	20.21
Repairs	15.79	14.94	14.06	12.68	15.21	13.87	18.37	18.85	15.19	14.54
Hired labor	5.24	5.62	4.64	4.93	3.98	4.40	8.54	8.67	8.66	8.88
Other variable cash expenses 1/	1.96	2.04	2.00	2.12	0.98	1.04	4.43	4.36	4.73	5.04
Total, variable cash expenses	80.90	80.16	90.24	92.85	65.03	62.71	129.96	129.33	95.77	97.63
General farm overhead	7.95	8.17	7.32	7.48	7.28	7.58	9.06	9.14	11.69	11.74
Taxes and insurance	14.27	13.40	14.09	14.11	12.86	12.13	15.89	14.88	23.64	21.79
Interest	13.38	11.90	4.70	4.02	13.70	12.20	15.84	13.79	7.44	6.45
Total, fixed cash expenses	35.60	33.47	26.11	25.61	33.84	31.91	40.79	37.81	42.77	39.98
Total, cash expenses	116.50	113.63	116.35	118.46	98.87	94.62	170.75	167.14	138.54	137.61
Gross value of production less cash expenses	49.43	12.75	142.61	129.40	42.02	-0.12	55.46	38.31	65.66	8.16
Harvest-period price (dollars/bu.)	2.97	2.28	3.06	2.39	2.82	2.11	3.18	2.53	3.55	2.47
Yield (bu./planted acre)	54.45	53.14	67.24	78.38	49.29	43.52	69.94	79.42	55.97	56.22

Appendix table 17b--Barley production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States		Northeast		Northern Plains		Northwest		Southwest	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production (excluding direct Government payments):										
Barley	161.72	121.16	205.75	187.33	139.00	91.83	222.41	200.93	198.69	138.86
Barley straw	4.21	5.22	53.21	60.53	1.89	2.67	3.80	4.52	5.51	6.91
Total, gross value of production	165.93	126.38	258.96	247.86	140.89	94.50	226.21	205.45	204.20	145.77
Economic (full ownership) costs:										
Variable cash expenses	80.90	80.16	90.24	92.85	65.03	62.71	129.96	129.33	95.77	97.63
General farm overhead	7.95	8.17	7.32	7.48	7.28	7.58	9.06	9.14	11.69	11.74
Taxes and insurance	14.27	13.40	14.09	14.11	12.86	12.13	15.89	14.88	23.64	21.79
Capital replacement	32.17	30.51	26.28	23.69	30.38	27.88	38.47	39.16	34.85	33.42
Operating capital	2.06	2.08	2.29	2.41	1.66	1.62	3.31	3.35	2.44	2.53
Other nonland capital	16.09	16.62	13.33	13.28	16.43	16.53	15.61	17.53	15.42	16.19
Land	42.13	38.04	19.58	19.42	35.96	31.09	64.25	60.13	51.29	48.52
Unpaid labor	6.99	7.44	13.68	14.35	5.38	5.82	10.82	11.06	9.08	9.34
Total, economic costs	202.56	196.42	186.81	187.59	174.98	165.36	287.37	284.58	244.18	241.16
Residual returns to management and risk	-36.63	-70.04	72.15	60.27	-34.09	-70.86	-61.16	-79.13	-39.98	-95.39
Harvest-period price (dollars/bu.)	2.97	2.28	3.06	2.39	2.82	2.11	3.18	2.53	3.55	2.47
Yield (bu./planted acre)	54.45	53.14	67.24	78.38	49.29	43.52	69.94	79.42	55.97	56.22

1/ Cost of purchased irrigation water and baling.

Appendix table 18a--Oats production cash costs and returns, excluding direct Government payments, 1996-97

Item	United States		Northeast		North Central		North Plains	
	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre								
Gross value of production (excluding direct Government payments):								
Oats	128.26	83.70	125.37	100.20	119.06	104.46	115.37	114.60
Oats straw	32.03	36.14	42.11	47.51	44.21	49.88	8.92	10.06
Total, gross value of production	160.29	119.84	167.48	147.71	163.27	154.34	124.29	124.66
Cash expenses:								
Seed	8.81	9.11	15.13	14.16	9.67	10.10	6.21	6.72
Fertilizer, lime, and gypsum	17.05	16.68	30.38	29.00	20.12	20.09	10.25	9.62
Chemicals	1.82	1.83	2.88	2.90	1.26	1.27	2.30	2.32
Custom operations 1/	4.33	4.30	4.91	4.89	5.75	5.71	2.42	2.41
Fuel, lube, and electricity	7.41	7.99	12.38	13.52	4.19	4.33	9.78	10.59
Repairs	9.63	11.40	11.51	14.80	6.50	7.63	12.35	14.75
Hired labor	1.93	2.02	3.12	3.27	1.73	1.81	0.35	0.36
Other variable cash expenses 2/	1.19	1.34	1.46	1.65	1.63	1.84	0.40	0.45
Total, variable cash expenses	52.17	54.67	81.77	84.19	50.85	52.78	44.06	47.22
General farm overhead	5.29	6.21	7.88	9.26	4.52	5.31	3.21	3.77
Taxes and insurance	14.85	14.85	22.10	22.10	20.15	20.15	7.75	7.75
Interest	5.49	5.52	5.27	5.30	6.14	6.17	5.10	5.13
Total, fixed cash expenses	25.63	26.58	35.25	36.66	30.81	31.63	16.06	16.65
Total, cash expenses	77.80	81.25	117.02	120.85	81.66	84.41	60.12	63.87
Gross value of production less cash expenses	82.49	38.59	50.46	26.86	81.61	69.93	64.17	60.79
Harvest-period price (dollars/bu.)	2.16	1.25	2.32	1.65	2.02	1.62	1.92	1.67
Yield (bu./planted acre)	59.38	66.96	54.04	60.73	58.94	64.48	60.09	68.62

Appendix table 18b--Oats production economic costs and returns, excluding direct Government payments, 1996-97

Item	United States		Northeast		North Central		North Plains	
	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre								
Gross value of production (excluding direct Government payments):								
Oats	128.26	83.70	125.37	100.20	119.06	104.46	115.37	114.60
Oats straw	32.03	36.14	42.11	47.51	44.21	49.88	8.92	10.06
Total, gross value of production	160.29	119.84	167.48	147.71	163.27	154.34	124.29	124.66
Economic (full ownership) costs:								
Variable cash expenses	52.17	54.67	81.77	84.19	50.85	52.78	44.06	47.22
General farm overhead	5.29	6.21	7.88	9.26	4.52	5.31	3.21	3.77
Taxes and insurance	14.85	14.85	22.10	22.10	20.15	20.15	7.75	7.75
Capital replacement	17.33	20.48	17.84	22.93	12.10	14.20	21.92	26.19
Operating capital	1.22	1.31	2.08	2.18	1.29	1.37	1.12	1.22
Nonland capital	10.82	11.86	12.09	13.26	10.48	11.49	11.17	12.24
Land	27.83	27.83	6.00	6.00	37.08	37.08	22.44	22.44
Unpaid labor	15.85	17.34	20.91	21.88	19.94	21.76	10.27	11.59
Total, economic costs	145.36	154.55	170.67	181.80	156.41	164.14	121.94	132.42
Residual returns to management and risk	14.93	-34.71	-3.19	-34.09	6.86	-9.80	2.35	-7.76
Harvest-period price (dollars/bu.)	2.16	1.25	2.32	1.65	2.02	1.62	1.92	1.67
Yield (bu./planted acre)	59.38	66.96	54.04	60.73	58.94	64.48	60.09	68.62

1/ Cost of custom operations and technical services. 2/ Cost of baling.

Appendix table 19a--Sugar beet production cash costs and returns, 1996-97 1/

Item	United States		Great Lakes		Red River Valley		Great Plains		Northwest		Southwest	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre												
Gross value of production:												
Beets	891.53	936.06	536.90	768.31	851.03	848.69	846.50	821.48	1157.00	1251.43	1360.52	1389.33
Beet tops	0.71	0.80	0.00	0.00	0.00	0.00	2.82	2.97	0.04	0.04	2.97	3.00
Total, gross value of production	892.24	936.86	536.90	768.31	851.03	848.69	849.32	824.45	1157.04	1251.47	1363.49	1392.33
Cash expenses:												
Seed	41.71	43.63	24.24	25.14	42.91	44.81	45.61	47.69	44.53	46.32	46.73	48.62
Fertilizer	70.89	69.51	70.85	67.91	41.68	39.86	90.51	88.01	125.79	121.96	107.98	106.36
Chemicals	73.91	74.15	60.65	60.47	71.12	71.13	77.24	77.23	82.75	82.79	89.32	89.50
Custom operations	34.14	37.54	23.99	29.20	23.93	24.16	22.30	23.77	35.99	37.79	163.88	178.63
Fuel and lubrication	41.69	42.71	22.76	26.33	21.87	20.73	53.80	55.17	95.69	96.87	65.27	65.76
Repairs	38.53	42.96	24.28	33.49	29.37	31.53	52.89	55.93	58.59	66.81	45.61	47.43
Hired labor	104.51	111.76	61.85	63.97	77.02	83.06	103.60	111.97	193.16	198.66	187.06	195.33
Purchased irrigation water	9.06	9.58	0.00	0.00	0.04	0.05	13.47	13.45	30.17	30.74	32.35	32.91
Freight and dirt hauling charges	16.06	17.26	6.27	8.89	11.93	11.81	18.37	17.81	14.15	16.73	64.52	66.87
Miscellaneous	12.84	13.20	4.17	4.42	16.54	16.79	6.19	6.36	5.62	5.80	37.42	38.49
Hauling allowance (-)	-8.58	-8.93	-2.30	-3.26	-11.39	-11.36	-1.95	-2.04	-1.49	-1.76	-35.27	-36.56
Total, variable cash expenses	434.76	453.37	296.76	316.56	325.02	332.57	482.03	495.35	684.95	702.71	804.87	833.34
General farm overhead	26.26	31.13	27.69	32.95	20.75	24.43	31.33	36.42	32.32	38.02	36.95	43.48
Taxes and insurance	36.46	37.01	52.08	52.04	33.23	33.64	34.61	35.35	32.58	32.86	47.41	48.60
Interest	35.81	36.19	38.60	39.31	32.88	33.20	41.98	41.89	36.86	37.19	32.71	33.02
Total, fixed cash expenses	98.53	104.33	118.37	124.30	86.86	91.27	107.92	113.66	101.76	108.07	117.07	125.10
Total, cash expenses	533.29	557.70	415.13	440.86	411.88	423.84	589.95	609.01	786.71	810.78	921.94	958.44
Gross value of production less cash expenses	358.95	379.16	121.77	327.45	439.15	424.85	259.37	215.44	370.33	440.69	441.55	433.89
Season-average price (dollars/ton)	45.44	45.44	41.62	41.62	46.76	46.76	44.67	44.67	45.84	45.84	43.00	43.00
Yield (net tons/planted acre) 2/	19.62	20.60	12.90	18.46	18.20	18.15	18.95	18.39	25.24	27.30	31.64	32.31

Appendix table 19b--Sugar beet production economic costs and returns, 1996-97 1/

Item	United States		Great Lakes		Red River Valley		Great Plains		Northwest		Southwest	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre												
Gross value of production:												
Beets	891.53	936.06	536.90	768.31	851.03	848.69	846.50	821.48	1157.00	1251.43	1360.52	1389.33
Beet tops	0.71	0.80	0.00	0.00	0.00	0.00	2.82	2.97	0.04	0.04	2.97	3.00
Total, gross value of production	892.24	936.86	536.90	768.31	851.03	848.69	849.32	824.45	1157.04	1251.47	1363.49	1392.33
Economic (full ownership) costs:												
Variable cash expenses	434.76	453.37	296.76	316.56	325.02	332.57	482.03	495.35	684.95	702.71	804.87	833.34
General farm overhead	26.26	31.13	27.69	32.95	20.75	24.43	31.33	36.42	32.32	38.02	36.95	43.48
Taxes and insurance	36.46	37.01	52.08	52.04	33.23	33.64	34.61	35.35	32.58	32.86	47.41	48.60
Capital replacement	51.24	57.07	31.66	43.75	38.58	41.42	69.70	73.31	84.01	95.90	52.76	54.86
Operating capital	11.06	11.74	7.55	8.20	8.27	8.61	12.27	12.83	17.43	18.20	20.48	21.58
Nonland capital	25.80	31.86	21.08	32.25	18.86	22.30	37.22	43.27	37.13	46.58	27.59	31.61
Land	143.87	149.66	98.66	117.99	135.77	138.40	138.57	135.31	192.41	206.44	189.90	195.57
Coop share	26.22	25.75	0.00	0.00	53.94	54.90	0.00	0.00	0.00	0.00	0.00	0.00
Unpaid labor	48.14	51.58	61.37	63.70	36.95	39.84	76.24	82.15	47.58	48.88	28.93	30.21
Total, economic costs	803.81	849.17	596.85	667.44	671.37	696.11	881.97	913.99	1128.41	1189.59	1208.89	1259.25
Residual returns to management and risk	88.43	87.69	-59.95	100.87	179.66	152.58	-32.65	-89.54	28.63	61.88	154.60	133.08
Season-average price (dollars/ton)	45.44	45.44	41.62	41.62	46.76	46.76	44.67	44.67	45.84	45.84	43.00	43.00
Yield (net tons/planted acre) 2/	19.62	20.60	12.90	18.46	18.20	18.15	18.95	18.39	25.24	27.30	31.64	32.31

1/ 1996 estimates are revised. 1997 estimates are preliminary. Sugarbeet prices are held at the 1996 level because State-level prices for the 1997 season will not be available before January 1999. 2/ Yields are those reported in USDA's 1992 Farm Costs and Returns Survey of sugarbeet growers adjusted for year-over-year changes as reported by NASS/USDA in Crop Production, 1997 Summary, January 1998.

Note: Sugar beet regions defined as: Great Lakes (Michigan, Ohio), Red River Valley (Minnesota, eastern North Dakota), Great Plains (western North Dakota, Montana, Wyoming, Nebraska, Colorado, Texas), Northwest (Idaho, Oregon except Klamath County), and Southwest (California, Klamath County of Oregon).

Appendix table 20a--Peanut production cash costs and returns, 1996-97

Item	United States		Virginia North Carolina		Southeast		Southern Plains	
	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre								
Gross value of production:								
Peanuts	635.14	604.38	832.06	732.05	680.56	621.85	481.58	543.21
Peanut hay	12.10	12.61	9.98	9.37	9.06	10.33	19.15	18.26
Total, gross value of production	647.24	616.99	842.04	741.42	689.62	632.18	500.73	561.47
Cash expenses:								
Seed	74.75	74.18	92.73	89.85	76.03	76.18	62.57	62.89
Fertilizer, lime, and gypsum	44.12	42.37	52.20	53.41	52.29	50.00	23.85	23.30
Chemicals	99.71	98.75	142.94	146.09	117.85	118.87	41.08	39.53
Custom operations 1/	8.70	8.80	4.85	4.84	8.84	8.85	10.51	10.65
Fuel, lube, and electricity	40.31	44.21	40.05	40.27	29.70	35.80	61.09	61.19
Repairs	28.62	29.50	27.83	28.97	27.03	27.64	32.14	33.10
Hired labor	32.86	35.06	42.63	44.84	32.27	35.37	28.74	29.71
Drying	17.03	16.65	5.15	4.70	18.29	16.74	20.99	22.37
Other variable cash expenses 2/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total, variable cash expenses	346.10	349.52	408.38	412.97	362.30	369.45	280.97	282.74
General farm overhead	12.94	22.09	18.56	31.71	11.84	20.37	12.05	20.43
Taxes and insurance	17.96	23.80	20.90	27.10	18.44	24.64	15.43	20.68
Interest	35.47	52.06	23.28	34.09	35.57	52.14	41.85	60.75
Total, fixed cash expenses	66.37	97.95	62.74	92.90	65.85	97.15	69.33	101.86
Total, cash expenses	412.47	447.47	471.12	505.87	428.15	466.60	350.30	384.60
Gross value of production less cash expenses	234.77	169.52	370.92	235.55	261.47	165.58	150.43	176.87
Harvest-period price (dollars/lb.)	0.26	0.26	0.28	0.27	0.27	0.27	0.24	0.25
Yield (lbs./planted acre)	2,442.86	2,324.55	2,971.63	2,711.28	2,520.61	2,303.13	2,006.58	2,172.85

Appendix table 20b--Peanut production economic costs and returns, 1996-97

Item	United States		Virginia North Carolina		Southeast		Southern Plains	
	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per planted acre								
Gross value of production:								
Peanuts	635.14	604.38	832.06	732.05	680.56	621.85	481.58	543.21
Peanut hay	12.10	12.61	9.98	9.37	9.06	10.33	19.15	18.26
Total, gross value of production	647.24	616.99	842.04	741.42	689.62	632.18	500.73	561.47
Economic (full ownership) costs:								
Variable cash expenses	346.10	349.52	408.38	412.97	362.30	369.45	280.97	282.74
General farm overhead	12.94	22.09	18.56	31.71	11.84	20.37	12.05	20.43
Taxes and insurance	17.96	23.80	20.90	27.10	18.44	24.64	15.43	20.68
Capital replacement	49.13	50.78	40.92	42.63	43.79	44.77	63.93	65.52
Operating capital	8.37	8.62	10.27	10.57	8.75	9.13	6.62	6.74
Other nonland capital	27.70	29.35	26.16	28.01	25.41	26.71	32.98	34.72
Land	44.67	44.56	62.93	62.25	43.06	40.98	37.97	42.26
Peanut quota	94.89	94.01	108.58	106.39	103.07	102.51	71.58	72.74
Unpaid labor	32.14	34.59	29.49	31.01	29.12	31.93	39.44	41.11
Total, economic costs	633.90	657.32	726.19	752.64	645.78	670.49	560.97	586.94
Residual returns to management and risk	13.34	-40.33	115.85	-11.22	43.84	-38.31	-60.24	-25.47
Harvest-period price (dollars/lb.)	0.26	0.26	0.28	0.27	0.27	0.27	0.24	0.25
Yield (lbs./planted acre)	2,442.86	2,324.55	2,971.63	2,711.28	2,520.61	2,303.13	2,006.58	2,172.85

1/ Cost of custom operations and technical services. 2/ Cost of purchased irrigation water.

Appendix table 21a--U.S. tobacco production cash costs and returns, 1996-97

Item	Flue-cured tobacco				Burly tobacco			
	Dollars per acre		Dollars per cwt		Dollars per acre		Dollars per cwt	
	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production	3,934.67	3,966.32	183.70	172.00	3,776.92	3,541.48	192.16	188.60
Cash expenses:								
Seed and plant bed	55.71	57.65	2.60	2.50	103.80	100.04	5.28	5.33
Fertilizer	282.59	290.73	13.19	12.61	305.84	296.94	15.56	15.81
Chemicals	216.56	218.38	10.11	9.47	97.83	98.65	4.98	5.25
Custom operations	9.07	9.88	0.42	0.43	12.90	14.48	0.66	0.77
Fuel, lube, and electricity	67.75	71.74	3.16	3.11	73.35	77.66	3.73	4.14
Curing fuel	272.91	301.50	12.74	13.07	1/	1/	1/	1/
Repairs	106.95	109.74	4.99	4.76	70.41	72.25	3.58	3.85
Hired labor	468.02	491.96	21.85	21.33	421.80	432.59	21.46	23.04
Marketing expenses	143.42	148.98	6.70	6.46	238.67	204.72	12.14	10.90
Other variable cash expenses	3.91	4.12	0.18	0.18	18.74	19.72	0.95	1.05
Total, variable cash expenses	1,626.89	1,704.68	75.96	73.92	1,343.34	1,317.05	68.34	70.14
General farm overhead	116.32	149.71	5.43	6.49	163.48	210.40	8.32	11.20
Taxes and insurance	111.78	122.91	5.22	5.33	40.13	44.22	2.04	2.35
Interest	129.03	142.47	6.02	6.18	64.50	71.22	3.28	3.79
Total, fixed cash expenses	357.13	415.09	16.67	18.00	268.11	325.84	13.64	17.35
Total, cash expenses	1,984.02	2,119.77	92.63	91.92	1,611.45	1,642.89	81.98	87.49
Gross value of production less cash expenses	1,950.65	1,846.55	91.07	80.08	2,165.47	1,898.59	110.17	101.11

Appendix table 21b--U.S. tobacco production economic costs and returns, 1996-97

Item	Flue-cured tobacco				Burly tobacco			
	Dollars per acre		Dollars per cwt		Dollars per acre		Dollars per cwt	
	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production	3,934.67	3,966.32	183.70	172.00	3,776.92	3,541.48	192.16	188.60
Economic (full ownership) costs:								
Variable cash expenses	1,626.89	1,704.68	75.96	73.92	1,343.34	1,317.05	68.34	70.14
General farm overhead	116.32	149.71	5.43	6.49	163.48	210.40	8.32	11.20
Taxes and insurance	111.78	122.91	5.22	5.33	40.13	44.22	2.04	2.35
Capital replacement	255.67	273.03	11.94	11.84	91.07	97.25	4.63	5.18
Operating capital	41.60	44.55	1.94	1.93	34.19	34.11	1.74	1.82
Other nonland capital	77.81	84.40	3.63	3.66	104.28	113.12	5.31	6.02
Land and quota	853.63	777.44	39.85	33.71	1,008.22	947.35	51.29	50.45
Unpaid labor	189.91	199.62	8.87	8.66	585.19	600.16	29.77	31.96
Total, economic (full ownership) costs	3,273.61	3,356.34	152.84	145.55	3,369.90	3,363.66	171.45	179.13
Residual returns to management and risk	661.06	609.98	30.86	26.45	407.02	177.82	20.71	9.47
Price (dollars/lb. and cwt.)	1.84	1.72	183.70	172.00	1.92	1.89	192.16	188.60
Yield (lb. and cwt./acre)	2,141.90	2,306.00	21.42	23.06	1,965.55	1,877.78	19.66	18.78

1/ Burley curing fuel costs are included in fuel, lube, and electricity expenses.

Appendix table 22a--Milk production cash costs and returns, per cwt, 1996-97

Item	United States		Northeast		Southeast		Upper Midwest		Corn Belt		Southern Plains		Pacific	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Dollars per cwt														
Gross value of production:														
Milk	14.78	13.43	15.19	13.74	17.41	15.87	14.74	13.32	14.88	13.46	15.10	13.70	13.89	12.77
Cattle	0.78	0.85	0.69	0.75	0.86	0.95	0.89	0.97	0.97	1.06	0.79	0.85	0.57	0.63
Other income 1/	0.61	0.59	0.51	0.46	0.50	0.52	0.77	0.75	0.52	0.50	0.40	0.38	0.57	0.56
Total, gross value of production	16.17	14.87	16.39	14.95	18.77	17.34	16.40	15.04	16.37	15.02	16.29	14.93	15.03	13.96
Cash expenses:														
Feed--														
Concentrates	4.09	4.11	4.04	4.04	5.89	5.90	4.19	4.19	4.47	4.49	5.86	5.86	3.13	3.14
By-products	0.21	0.21	0.04	0.04	0.45	0.45	0.11	0.11	0.25	0.26	0.19	0.19	0.43	0.43
Liquid whey	0.13	0.13	0.14	0.14	0.05	0.05	0.16	0.17	0.24	0.25	0.01	0.01	0.04	0.05
Hay	1.60	1.85	1.37	1.61	0.69	0.67	1.04	1.36	1.80	2.07	2.81	2.28	2.45	2.83
Silage	1.37	1.66	1.84	2.16	0.98	0.96	1.51	1.98	1.46	1.71	0.14	0.12	1.00	1.15
Pasture and other forage	0.13	0.12	0.03	0.03	0.06	0.07	0.16	0.12	0.13	0.13	0.08	0.08	0.20	0.20
Total feed costs	7.53	8.08	7.46	8.02	8.12	8.10	7.17	7.93	8.35	8.91	9.09	8.54	7.25	7.80
Other--														
Hauling	0.44	0.47	0.68	0.75	0.96	0.97	0.25	0.28	0.43	0.43	0.59	0.59	0.39	0.41
Artificial insemination	0.14	0.15	0.20	0.21	0.12	0.12	0.15	0.17	0.12	0.12	0.05	0.05	0.11	0.12
Veterinary and medicine	0.36	0.39	0.44	0.49	0.49	0.50	0.43	0.47	0.40	0.40	0.19	0.20	0.20	0.21
Bedding and litter	0.23	0.25	0.37	0.39	0.00	0.01	0.31	0.34	0.32	0.32	0.00	0.00	0.05	0.06
Marketing	0.36	0.38	0.45	0.49	0.53	0.54	0.25	0.28	0.31	0.30	0.26	0.27	0.44	0.47
Custom services and supplies	0.42	0.44	0.54	0.60	0.65	0.66	0.34	0.37	0.38	0.38	0.31	0.31	0.40	0.43
Fuel, lube, and electricity	0.53	0.53	0.70	0.69	0.34	0.34	0.62	0.61	0.58	0.56	0.49	0.48	0.28	0.29
Machinery and building repairs	0.76	0.83	0.93	0.99	0.63	0.64	1.01	1.09	0.87	0.96	0.43	0.45	0.30	0.31
Hired labor	0.62	0.59	0.61	0.58	1.35	1.31	0.56	0.53	0.61	0.57	0.78	0.76	0.56	0.54
DHIA fees	0.07	0.08	0.10	0.11	0.05	0.06	0.07	0.08	0.07	0.07	0.05	0.05	0.07	0.07
Dairy assessment	0.03	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.03	0.00	0.03	0.00
Total, variable cash expenses	11.49	12.19	12.51	13.32	13.27	13.25	11.19	12.15	12.47	13.02	12.27	11.70	10.08	10.71
General farm overhead	0.53	0.60	0.53	0.60	0.63	0.72	0.65	0.73	0.56	0.64	0.45	0.51	0.34	0.38
Taxes and insurance	0.33	0.32	0.44	0.43	0.37	0.35	0.43	0.42	0.31	0.29	0.16	0.16	0.13	0.13
Interest	0.85	0.83	0.79	0.76	0.60	0.59	1.16	1.13	0.71	0.69	0.60	0.59	0.64	0.62
Total, fixed cash expenses	1.71	1.75	1.76	1.79	1.60	1.66	2.24	2.28	1.58	1.62	1.21	1.26	1.11	1.13
Total, cash expenses	13.20	13.94	14.27	15.11	14.87	14.91	13.43	14.43	14.05	14.64	13.48	12.96	11.19	11.84
Gross value of production less cash expenses	2.97	0.93	2.12	-0.16	3.90	2.43	2.97	0.61	2.32	0.38	2.81	1.97	3.84	2.12

1/ Includes the dairy's share of receipts from cooperative patronage dividends, assessment refunds, renting or leasing of dairy animals, the estimated value of manure as a fertilizer, and insurance indemnity payments.

Appendix table 22b--Milk production economic costs and returns, per cwt, 1996-97

Item	United States		Northeast		Southeast		Upper Midwest		Corn Belt		Southern Plains		Pacific	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production:														
Milk	14.78	13.43	15.19	13.74	17.41	15.87	14.74	13.32	14.88	13.46	15.10	13.70	13.89	12.77
Cattle	0.78	0.85	0.69	0.75	0.86	0.95	0.89	0.97	0.97	1.06	0.79	0.85	0.57	0.63
Other income 1/	0.61	0.59	0.51	0.46	0.50	0.52	0.77	0.75	0.52	0.50	0.40	0.38	0.57	0.56
Total, gross value of production	16.17	14.87	16.39	14.95	18.77	17.34	16.40	15.04	16.37	15.02	16.29	14.93	15.03	13.96
Economic (full ownership) costs:														
Variable cash expenses	11.49	12.19	12.51	13.32	13.27	13.25	11.19	12.15	12.47	13.02	12.27	11.70	10.08	10.71
General farm overhead	0.53	0.60	0.53	0.60	0.63	0.72	0.65	0.73	0.56	0.64	0.45	0.51	0.34	0.38
Taxes and insurance	0.33	0.32	0.44	0.43	0.37	0.35	0.43	0.42	0.31	0.29	0.16	0.16	0.13	0.13
Capital replacement	2.01	2.14	2.02	2.14	2.54	2.59	2.34	2.50	2.07	2.23	2.10	2.13	1.40	1.48
Operating capital	0.10	0.11	0.11	0.12	0.12	0.12	0.10	0.11	0.11	0.12	0.10	0.10	0.08	0.09
Other nonland capital	0.87	0.98	0.83	0.94	1.55	1.68	0.99	1.12	0.85	0.98	0.87	0.94	0.61	0.69
Land	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01
Unpaid labor	1.80	1.73	2.56	2.44	0.32	0.31	2.15	2.04	3.00	2.84	0.90	0.88	0.45	0.44
Total, economic costs	17.13	18.07	19.00	19.99	18.80	19.02	17.85	19.07	19.38	20.13	16.85	16.42	13.10	13.93
Residual returns to management and risk	-0.96	-3.20	-2.61	-5.04	-0.03	-1.68	-1.45	-4.03	-3.01	-5.11	-0.56	-1.49	1.93	0.03

1/ Includes the dairy's share of receipts from cooperative patronage dividends, assessment refunds, renting or leasing of dairy animals, the estimated value of manure as fertilizer, and insurance indemnity payments.

Appendix table 23a--Hog production cash costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	48.87	47.75	48.31	47.25	50.69	49.35
Feeder pigs	5.17	6.60	5.28	6.78	4.83	6.01
Cull stock	3.02	3.30	3.02	3.33	3.04	3.20
Breeding stock	2.63	2.75	2.92	3.09	1.69	1.67
Inventory change	-0.84	1.56	-1.38	1.85	0.94	0.61
Other income 2/	1.31	1.29	1.43	1.41	0.93	0.91
Total, gross value of production	60.16	63.25	59.58	63.71	62.12	61.75
Cash expenses:						
Feed--						
Grain	17.25	12.45	17.86	12.79	15.24	11.40
Protein sources	10.48	11.89	11.29	12.91	7.82	8.65
Complete mixes	7.08	7.10	5.67	5.72	11.70	11.50
Other feed items 3/	0.67	0.66	0.80	0.80	0.22	0.21
Total feed costs	35.48	32.10	35.62	32.22	34.98	31.76
Other--						
Feeder pigs	3.81	4.87	3.58	4.57	4.58	5.82
Veterinary and medicine	1.41	1.24	1.57	1.38	0.89	0.79
Bedding and litter	0.08	0.07	0.10	0.09	0.02	0.02
Marketing	0.59	0.52	0.56	0.50	0.70	0.59
Custom services and supplies	0.51	0.44	0.47	0.40	0.64	0.57
Fuel, lube, and electricity	1.83	1.79	1.84	1.79	1.78	1.80
Repairs	1.41	1.45	1.45	1.50	1.28	1.29
Hired labor	2.74	2.97	2.78	3.04	2.63	2.74
Total, variable cash expenses	47.86	45.45	47.97	45.49	47.50	45.38
General farm overhead	1.59	2.04	1.72	2.23	1.14	1.45
Taxes and insurance	1.03	1.13	1.06	1.16	0.95	1.06
Interest	2.65	2.93	2.90	3.22	1.83	2.01
Total, fixed cash expenses	5.27	6.10	5.68	6.61	3.92	4.52
Total, cash expenses	53.13	51.55	53.65	52.10	51.42	49.90
Gross value of production less cash expenses	7.03	11.70	5.93	11.61	10.70	11.85

Appendix table 23b--Hog production economic costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	48.87	47.75	48.31	47.25	50.69	49.35
Feeder pigs	5.17	6.60	5.28	6.78	4.83	6.01
Cull stock	3.02	3.30	3.02	3.33	3.04	3.20
Breeding stock	2.63	2.75	2.92	3.09	1.69	1.67
Inventory change	-0.84	1.56	-1.38	1.85	0.94	0.61
Other income 2/	1.31	1.29	1.43	1.41	0.93	0.91
Total, gross value of production	60.16	63.25	59.58	63.71	62.12	61.75
Economic (full ownership) costs:						
Variable cash expenses	47.86	45.45	47.97	45.49	47.50	45.38
General farm overhead	1.59	2.04	1.72	2.23	1.14	1.45
Taxes and insurance	1.03	1.13	1.06	1.16	0.95	1.06
Capital replacement	11.76	12.30	11.49	11.99	12.64	13.29
Operating capital	1.22	1.18	1.22	1.18	1.21	1.17
Other nonland capital	4.07	4.71	3.84	4.41	4.83	5.63
Land	0.22	0.23	0.25	0.26	0.13	0.14
Unpaid labor	5.17	5.60	5.48	6.04	4.16	4.21
Total, economic (full-ownership) costs	72.92	72.64	73.03	72.76	72.56	72.33
Residual returns to management and risk	-12.76	-9.39	-13.45	-9.05	-10.44	-10.58

1/ Cwt gain = (cwt sold - cwt purchased) + cwt inventory change. 2/ Value of manure production. 3/ Milk replacer, milk by-products, antibiotics, and other medicated additives.

Appendix table 24a--Farrow-to-finish production cash costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	50.37	49.15	50.18	49.05	51.03	49.51
Feeder pigs	0.46	0.59	0.45	0.57	0.51	0.65
Cull stock	2.83	3.11	2.99	3.29	2.25	2.46
Breeding stock	0.24	0.26	0.21	0.22	0.35	0.38
Inventory change	-0.95	1.68	-1.42	2.00	0.73	0.55
Other income 2/	1.38	1.35	1.48	1.46	1.00	0.98
Total, gross value of production	54.33	56.14	53.89	56.59	55.87	54.53
Cash expenses:						
Feed--						
Grain	18.14	13.17	17.94	12.87	18.85	14.23
Protein sources	11.48	13.08	11.81	13.54	10.31	11.49
Complete mixes	5.12	5.15	4.23	4.24	8.28	8.28
Other feed items 3/	0.64	0.64	0.73	0.73	0.32	0.31
Total feed costs	35.38	32.04	34.71	31.38	37.76	34.31
Other--						
Feeder pigs	0.15	0.19	0.18	0.23	0.05	0.06
Veterinary and medicine	1.25	1.09	1.32	1.16	0.98	0.87
Bedding and litter	0.06	0.05	0.07	0.06	0.02	0.02
Marketing	0.48	0.42	0.46	0.41	0.54	0.47
Custom services and supplies	0.43	0.37	0.40	0.35	0.51	0.45
Fuel, lube, and electricity	1.75	1.73	1.72	1.67	1.88	1.92
Repairs	1.40	1.45	1.42	1.47	1.34	1.37
Hired labor	2.52	2.71	2.45	2.66	2.75	2.91
Total, variable cash expenses	43.42	40.05	42.73	39.39	45.83	42.38
General farm overhead	1.41	1.82	1.50	1.94	1.11	1.42
Taxes and insurance	0.94	1.03	0.96	1.05	0.85	0.94
Interest	2.38	2.62	2.61	2.90	1.55	1.69
Total, fixed cash expenses	4.73	5.47	5.07	5.89	3.51	4.05
Total, cash expenses	48.15	45.52	47.80	45.28	49.34	46.43
Gross value of production less cash expenses	6.18	10.62	6.09	11.31	6.53	8.10

Appendix table 24b--Farrow-to-finish production economic costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	50.37	49.15	50.18	49.05	51.03	49.51
Feeder pigs	0.46	0.59	0.45	0.57	0.51	0.65
Cull stock	2.83	3.11	2.99	3.29	2.25	2.46
Breeding stock	0.24	0.26	0.21	0.22	0.35	0.38
Inventory change	-0.95	1.68	-1.42	2.00	0.73	0.55
Other income 2/	1.38	1.35	1.48	1.46	1.00	0.98
Total, gross value of production	54.33	56.14	53.89	56.59	55.87	54.53
Economic (full ownership) costs:						
Variable cash expenses	43.42	40.05	42.73	39.39	45.83	42.38
General farm overhead	1.41	1.82	1.50	1.94	1.11	1.42
Taxes and insurance	0.94	1.03	0.96	1.05	0.85	0.94
Capital replacement	11.37	11.93	11.19	11.71	12.01	12.67
Operating capital	1.11	1.04	1.09	1.02	1.16	1.10
Other nonland capital	3.94	4.56	3.78	4.35	4.51	5.26
Land	0.23	0.24	0.26	0.27	0.13	0.13
Unpaid labor	4.97	5.40	5.18	5.72	4.22	4.30
Total, economic (full-ownership) costs	67.39	66.07	66.69	65.45	69.82	68.20
Residual returns to management and risk	-13.06	-9.93	-12.80	-8.86	-13.95	-13.67

1/ Cwt gain = (cwt sold - cwt purchased) + cwt inventory change. 2/ Value of manure production. 3/ Milk replacer, milk, milk by-products, antibiotics, and other medicated additives.

Appendix table 25a--Farrow-to-feeder pig production cash costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	1.16	1.15	1.30	1.30	0.80	0.75
Feeder pigs	72.12	91.53	74.52	94.41	65.74	83.84
Cull stock	7.24	7.85	6.99	7.61	7.89	8.48
Breeding stock	0.15	0.16	0.18	0.20	0.07	0.06
Inventory change	-0.48	0.97	-0.89	1.21	0.61	0.35
Other income 2/	1.45	1.43	1.50	1.48	1.30	1.28
Total, gross value of production	81.64	103.09	83.60	106.21	76.41	94.76
Cash expenses:						
Feed--						
Grain	19.86	14.00	23.93	16.85	9.01	6.39
Protein sources	10.75	12.23	12.77	14.71	5.37	5.61
Complete mixes	19.26	19.29	12.77	12.85	36.55	36.48
Other feed items 3/	0.81	0.80	1.04	1.03	0.19	0.18
Total feed costs	50.68	46.32	50.51	45.44	51.12	48.66
Other--						
Feeder pigs	0.04	0.06	0.06	0.08	0.01	0.01
Veterinary and medicine	4.78	4.20	5.60	4.90	2.60	2.33
Bedding and litter	0.21	0.18	0.27	0.24	0.04	0.04
Marketing	2.85	2.48	2.45	2.17	3.92	3.32
Custom services and supplies	1.57	1.43	1.03	0.91	3.01	2.82
Fuel, lube, and electricity	5.38	5.31	5.39	5.22	5.36	5.56
Repairs	2.90	2.88	3.21	3.22	2.06	1.99
Hired labor	7.89	8.68	6.44	7.15	11.75	12.77
Total, variable cash expenses	76.30	71.54	74.96	69.33	79.87	77.50
General farm overhead	2.94	3.80	2.94	3.77	2.93	3.87
Taxes and insurance	2.20	2.43	1.98	2.15	2.77	3.17
Interest	5.38	6.03	4.82	5.30	6.87	7.98
Total, fixed cash expenses	10.52	12.26	9.74	11.22	12.57	15.02
Total, cash expenses	86.82	83.80	84.70	80.55	92.44	92.52
Gross value of production less cash expenses	-5.18	19.29	-1.10	25.66	-16.03	2.24

Appendix table 25b--Farrow-to-feeder pig production economic costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	1.16	1.15	1.30	1.30	0.80	0.75
Feeder pigs	72.12	91.53	74.52	94.41	65.74	83.84
Cull stock	7.24	7.85	6.99	7.61	7.89	8.48
Breeding stock	0.15	0.16	0.18	0.20	0.07	0.06
Inventory change	-0.48	0.97	-0.89	1.21	0.61	0.35
Other income 2/	1.45	1.43	1.50	1.48	1.30	1.28
Total, gross value of production	81.64	103.09	83.60	106.21	76.41	94.76
Economic (full ownership) costs:						
Variable cash expenses	76.30	71.54	74.96	69.33	79.87	77.50
General farm overhead	2.94	3.80	2.94	3.77	2.93	3.87
Taxes and insurance	2.20	2.43	1.98	2.15	2.77	3.17
Capital replacement	27.25	28.69	24.11	24.92	35.58	38.78
Operating capital	1.94	1.86	1.91	1.80	2.03	2.01
Other nonland capital	8.70	10.15	7.54	8.63	11.77	14.20
Land	0.48	0.51	0.47	0.50	0.49	0.53
Unpaid labor	11.38	12.08	11.96	12.92	9.84	9.85
Total, economic (full-ownership) costs	131.19	131.06	125.87	124.02	145.28	149.91
Residual returns to management and risk	-49.55	-27.97	-42.27	-17.81	-68.87	-55.15

1/ Cwt gain = (cwt sold - cwt purchased) + cwt inventory change. 2/ Value of manure production. 3/ Milk replacer, milk by-products, antibiotics, and other medicated additives.

Appendix table 26a--Feeder pig-to-finish production cash costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	66.89	65.24	67.24	65.81	66.20	64.18
Feeder pigs	0.05	0.07	0.05	0.07	0.05	0.07
Cull stock	0.03	0.04	0.01	0.02	0.06	0.07
Breeding stock	0.01	0.01	0.02	0.02	0.00	0.00
Inventory change	-0.46	1.73	-1.52	2.24	1.62	0.77
Other income 2/	1.05	1.02	1.32	1.30	0.51	0.50
Total, gross value of production	67.57	68.11	67.12	69.46	68.44	65.59
Cash expenses:						
Feed--						
Grain	13.37	9.53	16.26	11.62	7.67	5.63
Protein sources	6.11	6.84	7.48	8.50	3.40	3.75
Complete mixes	9.89	10.00	7.65	7.87	14.32	13.96
Other feed items 3/	0.39	0.38	0.55	0.55	0.06	0.05
Total feed costs	29.76	26.75	31.94	28.54	25.45	23.39
Other--						
Feeder pigs	20.11	25.35	21.22	27.02	17.91	22.23
Veterinary and medicine	0.73	0.63	0.95	0.84	0.29	0.25
Bedding and litter	0.11	0.09	0.16	0.14	0.00	0.00
Marketing	0.44	0.38	0.45	0.40	0.41	0.35
Custom services and supplies	0.42	0.38	0.36	0.32	0.54	0.48
Fuel, lube, and electricity	0.86	0.84	0.88	0.85	0.83	0.83
Repairs	0.90	0.90	1.04	1.07	0.61	0.59
Hired labor	0.88	0.91	1.14	1.22	0.36	0.35
Total, variable cash expenses	54.21	56.23	58.14	60.40	46.40	48.47
General farm overhead	1.32	1.70	1.52	1.97	0.93	1.19
Taxes and insurance	0.99	1.08	1.03	1.12	0.91	1.01
Interest	2.75	3.01	3.21	3.53	1.84	2.03
Total, fixed cash expenses	5.06	5.79	5.76	6.62	3.68	4.23
Total, cash expenses	59.27	62.02	63.90	67.02	50.08	52.70
Gross value of production less cash expenses	8.30	6.09	3.22	2.44	18.36	12.89

Appendix table 26b--Feeder pig-to-finish production economic costs and returns, 1996-97

Item	United States		North		South	
	1996	1997	1996	1997	1996	1997
Dollars per cwt grain 1/						
Gross value of production:						
Market hogs	66.89	65.24	67.24	65.81	66.20	64.18
Feeder pigs	0.05	0.07	0.05	0.07	0.05	0.07
Cull stock	0.03	0.04	0.01	0.02	0.06	0.07
Breeding stock	0.01	0.01	0.02	0.02	0.00	0.00
Inventory change	-0.46	1.73	-1.52	2.24	1.62	0.77
Other income 2/	1.05	1.02	1.32	1.30	0.51	0.50
Total, gross value of production	67.57	68.11	67.12	69.46	68.44	65.59
Economic (full ownership) costs:						
Variable cash expenses	54.21	56.23	58.14	60.40	46.40	48.47
General farm overhead	1.32	1.70	1.52	1.97	0.93	1.19
Taxes and insurance	0.99	1.08	1.03	1.12	0.91	1.01
Capital replacement	8.00	8.32	8.06	8.40	7.87	8.17
Operating capital	1.38	1.46	1.48	1.56	1.18	1.25
Other nonland capital	3.00	3.45	2.77	3.17	3.46	3.97
Land	0.10	0.11	0.12	0.12	0.06	0.07
Unpaid labor	4.36	4.71	5.12	5.67	2.85	2.91
Total, economic (full-ownership) costs	73.36	77.06	78.24	82.41	63.66	67.04
Residual returns to management and risk	-5.79	-8.95	-11.12	-12.95	4.78	-1.45

1/ Cwt gain = (cwt sold - cwt purchased) + cwt inventory change. 2/ Value of manure production. 3/ Milk replacer, milk by-products, antibiotics, and other medicated additives.

Appendix table 27a--Cow-calf production cash costs and returns, per bred cow, 1996-97

Item	United States		North Central		Plains		Southeast		West	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production:										
Steer calves	88.13	128.21	96.74	140.01	91.17	134.35	64.94	100.75	89.02	121.92
Heifer calves	55.46	80.33	64.14	92.26	54.10	79.04	52.67	81.86	55.10	75.37
Yearling steers	76.97	89.86	33.33	41.34	95.04	106.38	22.75	32.33	91.71	112.10
Yearling heifers	32.93	38.24	10.60	13.51	41.98	47.01	11.98	17.06	36.90	43.91
Other cattle	58.79	68.86	49.46	57.95	60.24	71.90	47.69	55.30	67.67	75.90
Total, gross value of production	312.28	405.50	254.27	345.07	342.53	438.68	200.03	287.30	340.40	429.20
Cash expenses:										
Feeder cattle	32.43	37.37	49.94	58.09	26.13	28.76	6.56	9.01	52.72	62.96
Feed--										
Concentrates and other feed	29.15	28.82	29.97	32.53	34.17	33.28	23.82	22.72	19.30	19.02
Supplemental feed	21.06	19.86	41.09	39.06	21.92	20.35	15.36	15.21	9.76	9.68
Harvested forages	110.72	112.65	290.53	294.25	67.14	68.39	84.28	80.07	122.56	131.75
Cropland pasture	7.64	7.79	3.32	3.49	8.50	8.73	3.93	4.38	10.43	10.10
Private pasture	90.83	88.49	63.41	64.30	65.17	67.16	51.27	55.70	195.97	175.73
Public land	6.69	6.41	0.76	0.75	6.75	6.92	0.00	0.00	14.27	12.37
Total feed costs	266.09	264.02	429.08	434.38	203.65	204.83	178.66	178.08	372.29	358.65
Other--										
Veterinary and medicine	21.68	22.27	34.86	35.31	17.56	17.98	18.16	18.93	25.82	27.01
Bedding and litter	0.36	0.37	1.00	1.01	0.17	0.17	0.31	0.32	0.48	0.49
Marketing	5.90	6.09	4.08	4.04	6.37	6.54	5.75	6.07	5.97	6.25
Custom operations	30.40	31.35	34.94	35.06	25.60	26.25	25.12	26.47	42.71	44.68
Fuel, lube, and electricity	22.29	22.33	18.68	18.30	24.21	23.97	18.04	18.03	22.30	23.21
Repairs	25.23	25.99	27.18	27.20	28.00	28.76	21.65	22.91	19.21	20.14
Hired labor	39.42	42.20	14.41	16.11	43.22	46.27	14.74	14.92	60.43	63.98
Total, variable cash expenses	443.80	451.99	614.17	629.50	374.91	383.53	288.99	294.74	601.93	607.37
General farm overhead	28.56	33.72	20.57	24.25	29.17	34.41	18.61	22.01	38.00	44.64
Taxes and insurance	17.84	17.75	23.88	23.81	18.49	18.33	10.43	10.49	16.85	16.90
Interest	32.04	32.46	24.01	24.30	36.65	37.14	16.99	17.11	34.58	34.82
Total, fixed cash expenses	78.44	83.93	68.46	72.36	84.31	89.88	46.03	49.61	89.43	96.36
Total, cash expenses	522.24	535.92	682.63	701.86	459.22	473.41	335.02	344.35	691.36	703.73
Gross value of production less cash expenses	-209.96	-130.42	-428.36	-356.79	-116.69	-34.73	-134.99	-57.05	-350.96	-274.53

Appendix 27b--Cow-calf production economic costs and returns, per bred cow, 1996-97

Item	United States		North Central		Plains		Southeast		West	
	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
Gross value of production:										
Steer calves	88.13	128.21	96.74	140.01	91.17	134.35	64.94	100.75	89.02	121.92
Heifer calves	55.46	80.33	64.14	92.26	54.10	79.04	52.67	81.86	55.10	75.37
Yearling steers	76.97	89.86	33.33	41.34	95.04	106.38	22.75	32.33	91.71	112.10
Yearling heifers	32.93	38.24	10.60	13.51	41.98	47.01	11.98	17.06	36.90	43.91
Other cattle	58.79	68.86	49.46	57.95	60.24	71.90	47.69	55.30	67.67	75.90
Total, gross value of production	312.28	405.50	254.27	345.07	342.53	438.68	200.03	287.30	340.40	429.20
Economic (full ownership) costs:										
Variable cash expenses	443.80	451.99	614.17	629.50	374.91	383.53	288.99	294.74	601.93	607.37
General farm overhead	28.56	33.72	20.57	24.25	29.17	34.41	18.61	22.01	38.00	44.64
Taxes and insurance	17.84	17.75	23.88	23.81	18.49	18.33	10.43	10.49	16.85	16.90
Capital replacement	134.53	136.13	261.17	274.12	120.22	124.58	168.77	156.45	70.19	68.99
Operating capital	11.29	0.18	15.63	0.25	9.54	0.15	7.35	0.12	15.32	0.24
Other nonland capital	40.32	43.93	87.79	96.12	34.31	37.57	49.01	53.99	20.27	22.12
Land	1.94	1.81	4.50	4.18	1.85	1.74	1.28	1.12	0.97	0.97
Unpaid labor	79.66	84.65	73.48	79.58	66.16	70.43	61.93	64.22	127.93	135.25
Total, economic costs	757.94	770.16	1,101.19	1,131.81	654.65	670.74	606.37	603.14	891.46	896.48
Residual returns to management and risk	-445.66	-364.66	-846.92	-786.74	-312.12	-232.06	-406.34	-315.84	-551.06	-467.28

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